THE Journal

OCTOBER

1951

CONTENTS

Denture in harmony with biologic limitations—Applegate 409
Paralleling technic in roentgenology—Williams 419
Incidence of subluxation—Bauerle 434
Clasp partial denture—McCall 439
Oral clinical color photography simplified—Sault 443
1913 greetings from Homer C. Brown, president 459
Evaluation of clinical competence—Frech 462
New Zealand school dental nurse system—Saunders 472
Reports of Councils 479
Editorials 496
Washington news letter 499
News of dentistry 501
Book reviews 519
Current literature 522
The reader comments 524
Deaths 526
Directory 528
Announcements 530

NINETY-SECOND ANNUAL SESSION

WASHINGTON, D.C. — OCT. 15-18

THE PLASTIC TEETH WITH THE *Ten Advantages*

When Trubyte Acrylic Teeth were introduced, we promised to continue the study of the plastics. We hoped then that we would be able eventually to improve the acrylic resins or develop a better product for manufacturing plastic artificial teeth.

WE KEPT THAT PROMISE

In innumerable mouths Trubyte Dentron Teeth have proved to be the most satisfactory plastic teeth that have yet been made.

Compare AND DECIDE....

1. More resistant to abrasion and wear.
2. Hard—will not stretch or "flow."
3. Form an excellent union with denture materials.
4. Will not craze from the common use of solvents, or from the usual contact with eugenol paste materials and acrylic monomers.
5. Immune to mouth fluids. Not attacked by medicines or alcoholic liquors.
6. Dense and smooth. Easy to keep clean.
7. Withstand processing temperatures without distortion or deterioration.
8. Can be safely reprocessed.
9. Fluorescent.
10. Available in the popular Trubyte New Hue Forms and Trubyte New Hue Shades.

"DENTSPLY" GIVES YOU A CHOICE of popular ... with ...
TRUBYTE NEW HUE® TEETH ... world
and **TRUBYTE *Dentron*® TEETH**—the plastic teeth with the 10 advantages.

THE DENTISTS' SUPPLY COMPANY OF NEW YORK

ATTENTION! *Replica* users

Now available—a concise, easy to use procedural booklet. The Replica Brush Method and "cotton roll" compression mixing procedures are included in this latest informative booklet. Although the information is pertinent to Replica, the general considerations presented should make the booklet helpful to all plastic filling material users.

If your dealer does not have a supply of this booklet, the coupon will bring a copy to you at once.

COSMOS DENTAL PRODUCTS, INC.
219 East 44th Street, New York 17, N. Y.

GENTLEMEN: Please send me your new plastic filling material booklet "PROCEDURES".

Dr. _____

Address _____

City _____ Zone _____

State _____

Dealer's Name _____

The Journal of the American Dental Association, Vol. 43, No. 4. Published by the American Dental Association, 222 E. Superior St., Chicago 11, Ill. Yearly subscription $7.00 for U. S. and possessions; $8.00 for foreign countries. Single copy seventy-five cents. Entered as second-class matter, December 31, 1947, at the postoffice at Chicago, Ill., under the act of March 3, 1879. Published monthly. Copyright 1951 by the American Dental Association. The Journal of the American Dental Association is indexed in the Index to Dental Literature and, in part, in the Quarterly Cumulative Index Medicus, Biological Abstracts and Chemical Abstracts.

THE PLASTIC TEETH WITH THE

Ten Advantages...

TRUBYTE

Dentron®

TEETH

When Trubyte Acrylic Teeth were introduced, we promised to continue our study of the plastics. We hoped then that we would be able eventually to improve the acrylic resins or develop a better product for manufacturing plastic artificial teeth.

WE KEPT THAT PROMISE....

In innumerable mouth tests, Trubyte Dentron Teeth have proved to be the most satisfactory plastic teeth that have yet been made.

"DENTSPLY" GIVES YOU A CHOICE
of popular forms and shades in porcelain and plastic teeth . . .

TRUBYTE NEW HUE® TEETH
the most popular teeth in the world

and

TRUBYTE *Dentron*® TEETH
the plastic teeth with the 10 advantages.

THE DENTISTS' SUPPLY

Compare AND DECIDE...

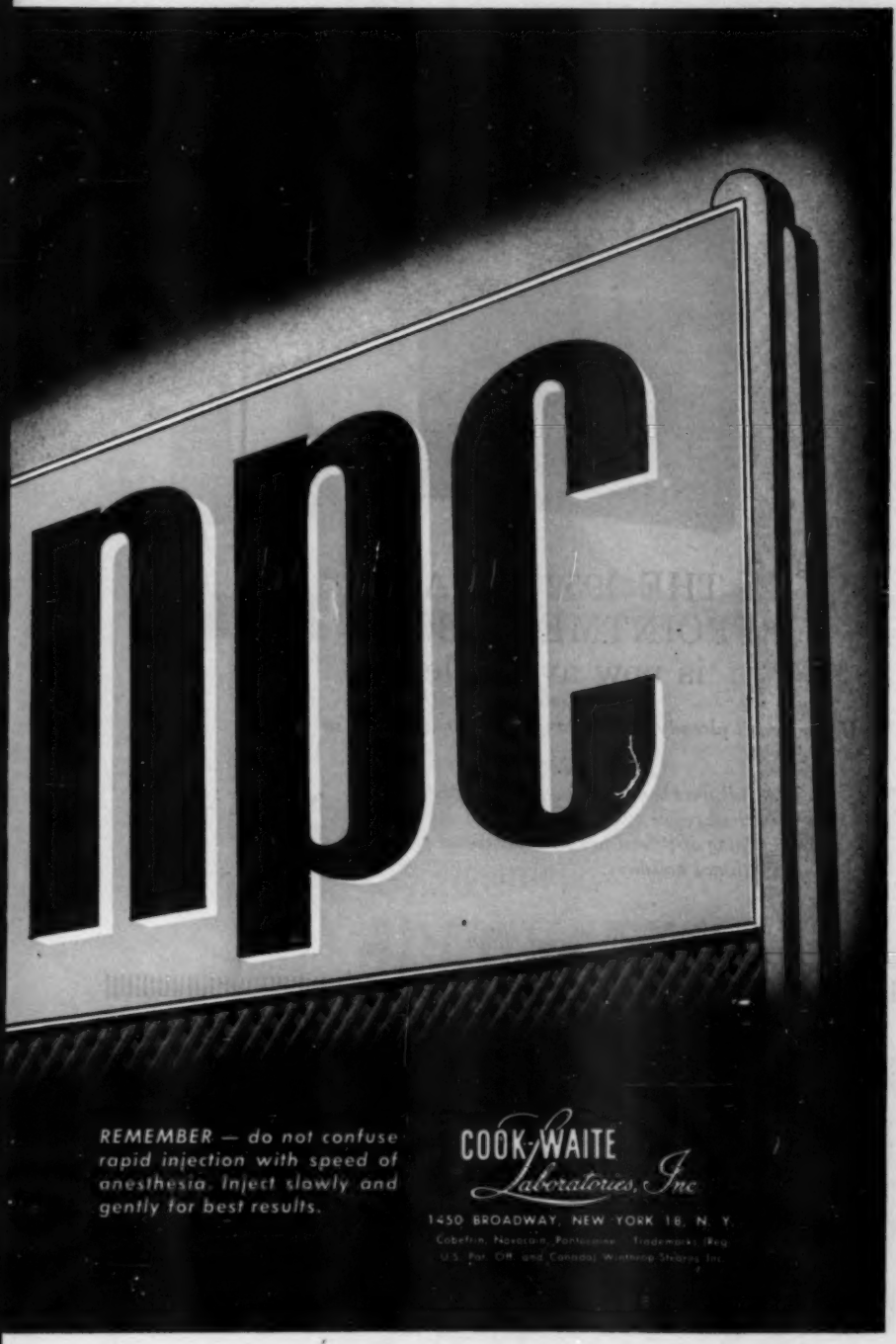
1. Trubyte Dentron Teeth are more resistant to abrasion and wear.
2. Trubyte Dentron Teeth are hard. They will not stretch or "flow" under the stresses of mastication.
3. Trubyte Dentron Teeth form an excellent union with acrylic and similar denture materials.
4. Trubyte Dentron Teeth will not craze from the common use of such solvents as carbon tetrachloride, ether and alcohol or from the usual contact with eugenol paste materials and acrylic monomers.
5. Trubyte Dentron Teeth are immune to mouth fluids and not attacked by medicines or alcoholic liquors.
6. Trubyte Dentron Teeth are dense and smooth. Easy to keep clean.
7. Trubyte Dentron Teeth are highty heat resistant. They withstand processing temperatures without distortion or deterioration. They can be "brush flamed" safely.
8. Dentures with Trubyte Dentron Teeth can be safely repaired and reprocessed without damage to the teeth.
9. Trubyte Dentron Teeth are fluorescent.
10. Trubyte Dentron Teeth are available in the popular Trubyte New Hue Forms and Trubyte New Hue Shades.

RAPID onset...
COMFORTABLE tolerance...
ADEQUATE anesthesia...

for prolonged procedures or relief of post-operative discomfort following surgery

Order a supply of Novocain-Pontocaine-Cobefrin today and you'll see why

"the Difference is Distinctive"

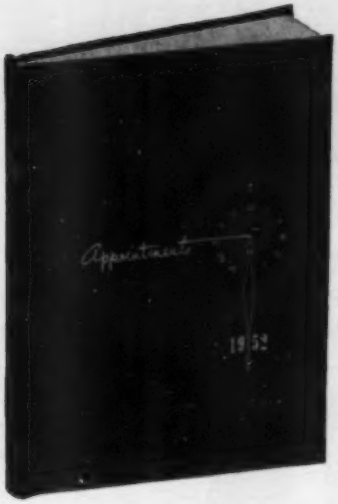


REMEMBER — do not confuse rapid injection with speed of anesthesia. Inject slowly and gently for best results.

COOK-WAITE *Laboratories, Inc*

1450 BROADWAY, NEW YORK 18, N. Y.

Cobefrin, Neocobefrin, Pontocaine — Trademarks Reg. U.S. Pat. Off. and Canada; Winthrop Stearns Inc.



THE 1952 A.D.A. APPOINTMENT BOOK is now available

If you aren't already on the standing order list, send in your order today.

Exclusive Features

- *A full week's appointments at a glance.*
- *Patient recall system.*
- *Catalog of dental health educational literature.*
- *National holidays.*

use this order blank

Order Department, AMERICAN DENTAL ASSOCIATION
222 East Superior Street, Chicago 11, Illinois

Check the order you wish to place:

☐ *Place my name on the standing order list to get the A. D. A. Appointment Book each year beginning with the 1952 edition. This order is cancellable at any time.*

☐ *Just send me a copy of the 1952 book. My remittance of $1.50 is enclosed.*

name _____

address _____

city _____ *zone* _____ *state* _____

please type or print

NC
NOVOCAIN
COBEFRIN
RAPID
onset...
COMFORTABLE
tolerance...
ADEQUATE
anesthesia...
for simple extractions
COOK-WAITE
Laboratories, Inc.
1488 BROADWAY, NEW YORK 18, N. Y.
Cobefrin, Novocain Trademarks Reg. U.S. Pat. Off. and Canada; Winthrop-Stearns Inc.
REMEMBER — do not combine rapid injection with speed of anesthesia. Inject slowly and gently for best results.

AUREOMYCIN

Lederle

When oral infection presents itself, the first thought should be the systemic and local use of aureomycin. This will not only tend to control or destroy the original infection, but will also tend to prevent its extension into neighboring tissues or invasion of the blood stream. Aureomycin is now available in several forms adapted to use by the dental profession, including capsules, soluble tablets, dental cones, and dental paste.

Aureomycin may be used as an adjunct for the prevention or treatment of bacterial infections commonly encountered in dental surgery, including necrotizing gingivitis, pericoronitis, acutely infected pulp, acute abscess, periodontal pocket, and periapical abscess, as well as for the prevention of infections following extractions. The tablets may be used locally by direct application to the affected area as a cone or in a solution. Cones may be used whole or crushed. Paste should be formed to suit the cavity and applied directly. In severe infections, it is necessary to support local therapy by the oral administration of aureomycin capsules.

Dental Cones:
Tubes of 12.

Dental Paste:
30 mg. per Gm.—Jars of 5 Gm.

Soluble Tablets:
50 mg.—Tubes of 40 and bottles of 100.

Aureomycin dental products are available through pharmacists.

LEDERLE LABORATORIES DIVISION

AMERICAN CYANAMID COMPANY

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

the famous NEY "SPOKE CASTING" DEMONSTRATION

Each "wheel"* was cast by regular laboratory equipment with 3 ounces of NEY-ORO G-3, — a dramatic illustration of the exceptional casting qualities of this popular gold. Its toughness, resilience and strength are evident in the amount of bending and twisting an individual spoke will take before it breaks.

By selecting NEY-ORO G-3 as your preferred partial denture metal, you can look forward to ease of casting, sound metal structure, generous margin of safety for necessary clasp adjustment. It's the best gold for the purpose and the best we know how to make.

* Each "wheel" has sixty-three 14 ga. spokes which, laid end to end, would make a continuous rod of casting gold 6 feet long!!!

THE J. M. NEY COMPANY
HARTFORD 1, CONNECTICUT

NEY GOLD

BETWEEN VISITS_

Kolynos Helps Protect Their Teeth

Regular brushing of the teeth after eating, using an effective dentifrice, has been shown to reduce tooth decay. No tooth paste, ammoniated or regular, has been clinically proved better than Kolynos as an adjunct to brushing. The foamy, active bubbles in Kolynos help dislodge tiny food particles from between the teeth. Kolynos' cleansing agents help loosen and remove harmful dental plaques which might otherwise lead to tooth decay. We make no wild claims for Kolynos, but we do say there is no better tooth paste made. May we suggest that you recommend Kolynos to your patients?

"THE WHITE GUARD," an informative and instructive story illustrated in color and written in entertaining fashion for patients who have not yet reached their teens, a story on the importance of good oral hygiene, available to you in booklet form. Just send your request on your letterhead to Dept. ADA, WHITEHALL PHARMACAL COMPANY, 22 East 40th Street, New York 16, N. Y.

WHITEHALL

FOR PROMPT
INTESTINAL CLEANSING . . .

Evacuant **ACTION** WITHOUT **REACTION**

In cases of transient costive distress, or for prompt intestinal cleansing prior to diagnostic or surgical work, larger doses of Phospho-Soda (Fleet) are widely used to induce a prompt, complete evacuation, much like the response to an enema. Yet its gentle action is quite free from irritation, griping, or other adverse reactions. Samples on request.

Phospho-Soda (Fleet) is a solution containing in each 100 cc sodium biphosphate 48 Gm. and sodium phosphate 18 Gm. Both Phospho-Soda and Fleet are registered trade-marks of C. B. Fleet Co., Inc.

C. B. FLEET CO., INC. · LYNCHBURG, VIRGINIA

THERE IS ONLY ONE **PHOSPHO-SODA (FLEET)**

A Laxative for *Judicious* Therapy

REQUESTED BY DENTISTS. Because so many dentists recommend stimulation of the interproximal areas, we are now offering the PRO "59" Medium Size Tooth Brush with a specially designed rubber tip for this purpose. This brush features the new, finer, softer bristles for safer gum massage . . . deeper cleaning . . . brighter polishing.

REMOVABLE TIP. For those cases where the use of the tip is not indicated, it may be readily removed without injuring the brush in any way.

PROFESSIONAL SAMPLE. We would like to have you see and use this new brush and shall be very glad to send you a free sample. Please fill out and mail the coupon below.

• At the A. D. A. Meeting please visit our Booth #122

Pro-phy-lac-tic Brush Company, Dept. A
Florence, Mass.

Gentlemen:

Please send me a Professional Sample of the PRO "59" Tooth Brush with new Stimulator Tip.

Name.....
(Please Print)

Address.....

City and State.....

PRO "59"

by Pro-phy-lac-tic

REGULAR SIZE — MEDIUM SIZE
CHILD'S (PRO "29") SIZE

DETECTION OF PROXIMAL CARIES: *The Bite-Wing radiograph reproduced above (enlarged) reveals several carious areas that would be difficult or impossible to locate otherwise.*

For maximum results...
For optimum efficiency...

LOCAL ANESTHESIA PRIOR TO REPAIR: *Illustration shows point of insertion and direction of the needle for blocking inferior alveololingual nerves, using the direct thrust technic. Point of needle is in contact with the mucous membrane covering the internal oblique line, 1 cm. above the occlusal surface of the last molar.*

(Adapted from "Practical Anesthesia for Dental and Oral Surgery," Harry M. Seldin, D.D.S. Courtesy: Lea & Febiger.)

WITH BITE-WING RADIOGRAPHY for the early detection of proximal caries; with anesthesia for use when indicated; the location, preparation, and repair of cavities become increasingly efficient, precise, and comfortable for the patient.

With Kodak Film and Kodak Processing Chemicals, the dentist has assurance that his skill and experience are fully supported by the uniformity and quality of his radiographic materials. They are made to work together . . . made to produce best results.

1. *Kodak X-ray Films*—Kodak Bite-Wing Film (for interproximal examinations) . . . Kodak Periapical Films (3 types)—Radia-Tized, Regular, and Ultra-Speed . . . Kodak Occlusal Film . . . Kodak Blue Brand Film and Kodak No-Screen Film (for extraoral studies).

2. *Kodak X-ray Processing Chemicals*—Kodak Concentrated Dental X-ray Developer . . . Kodak Concentrated Dental X-ray Fixer.

Other Kodak Products for Dentists: Film Chest, Dispenser, Receptacle . . . Exposure Holders . . . Intensifying Screens . . . Safelight Lamps and Filters . . . Processing Tanks . . . Processing Hangers . . . Thermometer . . . Mounts . . . Film Corner Cutter.

Order through your regular dental dealer

For finest results:

USE KODAK FILM

PROCESS IN KODAK CHEMICALS

Eastman Kodak Company, *X-ray Division*, Rochester 4, N. Y.

Kodak
TRADE-MARK

BEST *yesterday!*
BEST *today!*
BEST *tomorrow!*

In 1926, Luxene gave to the dental profession one of the first and the *best* plastic material then devised to replace Vulcanite. Today, rounding out 25 years of continuous progress, Luxene 44, the Vinylite* Denture Base material, is the *best* in the field. The plastics research which developed each Luxene product is still working to produce for tomorrow the material which will be tomorrow's *best.*

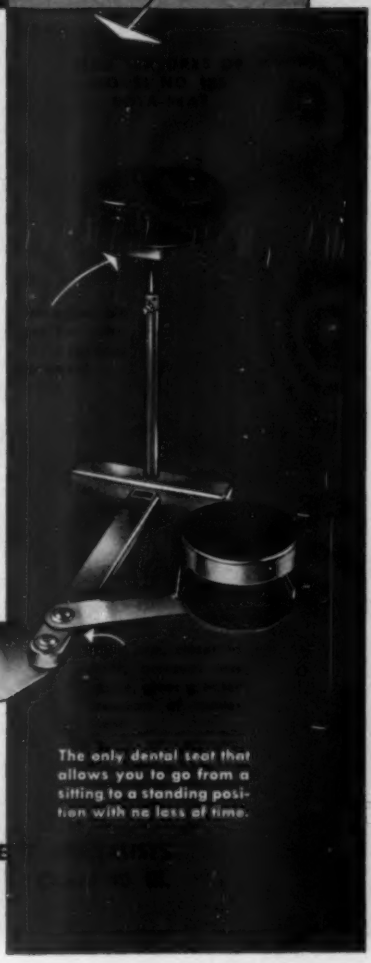
LUXENE, INC. NEW YORK

*REGISTERED TRADE MARK

Rota-Seat was *first* to bring you "Sit down dentistry"—the *first* and only dental seat to include the foot control. Now, the *new, all steel* Model 125 Rota-Seat is the *first* to offer an automatically adjustable seat which permits a to-and-fro *lateral* movement for closer positioning to the chair than ever before, with no strain on legs. This gives added comfort advantages to the dentist, it still quickly adjusts to the height and working distance preferred—the hands are always free and there's no fumbling for the foot switch. The main arm of this new Model No. 125 is closer to the floor, occupies less space and gives operator much greater freedom of movement around the chair.

These advantages, found only in the Rota-Seat, plus the new low price, make Rota-Seat still the best dental seat available today. Consult your dental supply dealer for a welcome surprise, or write direct for full particulars.

See this new Rota-Seat at our booth No. 30 at the American Dental Association Convention in Washington.



The only dental seat that allows you to go from a sitting to a standing position with no loss of time.

rota-seat INC.

DENTAL EQUIPME

4606 W. 21st St.

It's what you do at the chair, doctor
plus
what your patient does at home
that adds up to sound oral hygiene.
IPANA
TOOTH PASTE
Product of BRISTOL-MYERS • 19 West 50 Street, New York 20, N. Y.

OCTOBER 1951

THE Journal OF THE AMERICAN DENTAL ASSOCIATION

VOLUME 43 • NUMBER 4

Keeping the partial denture in harmony with biologic limitations

Oliver C. Applegate, D.D.Sc., and*
Roland O. Nissle,† D.D.S., Ann Arbor, Mich.

There are certain fundamental considerations which have a positive influence upon the rendering of partial denture service. The first of these, which presumably has been fulfilled, is, "Partial denture service should begin with the establishment of a condition of oral health, in so far as this is possible."[1] A second basic fundamental is, "A major objective of partial denture service should be the preservation of the remaining oral tissues."[1]

To accomplish the latter with any degree of regularity, the functional stress load must be allocated in accordance with the patient's ability to assume such additional stresses. In this connection, another most important influencing factor becomes apparent: "Since the physiological tissue tolerance of individuals varies greatly, the stress load induced by the partial denture should be directed toward the minimal in order not to exceed the point of individual tolerance."[1] In designing the partial denture, it is necessary to analyze the stresses anticipated, to seek their causes and control, and to consider the character of the tissues against which they may be directed.

In 1936, at the Chicago Midwinter Meeting, De Van[2] of Philadelphia urged an audience particularly interested in problems of prosthodontics to "strive to preserve that which remains, rather than to meticulously replace that which is

*Professor of dentistry (partial denture prosthesis), director of partial denture prosthesis, University of Michigan, Ann Arbor, Mich.

†Associate professor of dentistry (partial denture prosthesis), University of Michigan, Ann Arbor, Mich.

1. Applegate, Oliver C. Essentials of partial denture prosthesis. (In preparation.)

2. De Van, M. M. Application of the embrasure saddle clasp in partial denture design. Read at the Midwinter Meeting of the Chicago Dental Society, 1936.

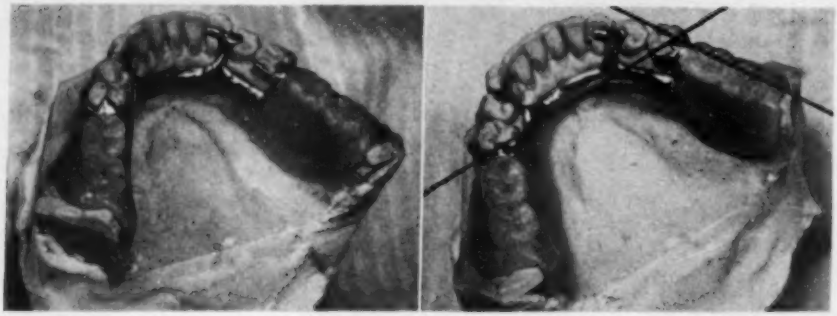


Fig. 1 • Left: A free-end, extension type of prosthesis getting its major support from the tissue subjacent to its base. Right: Rotation lines of appliance movement. It has vertical movements toward and away from the supporting tissue and right or left lateral movements at its free end. It may also rotate laterally on a line along the ridge crest and through the occlusal rest

missing." If this were to become the guiding motive of partial denture practice, the oral health of the partially edentulous public would achieve a new degree of excellence.

A partial denture may be defined as, "a removable prosthetic appliance which replaces one or more missing teeth. It derives its support principally from the tissues subjacent to its base and to a lesser degree from the supporting teeth which also serve to retain and stabilize the appliance."[1] The partial denture is a free-end extension type of prosthesis (Fig. 1, left), in contradistinction to the tooth-borne appliance which has a supporting and retaining tooth at each terminus of a base. This type may occur in any one of the four divisions of the Kennedy method of classification of partially edentulous dental arches.[3]

Since the base of the partial denture is supported by tissues which possess a varying degree of yield, the partial denture will be subject to some movement in spite of all efforts toward stabilization. A vertical movement occurs in two directions, with the base moving either toward the supporting tissue or away from it. In these movements, the appliance rotates about a line which extends through the marginal ridges of the abutment teeth on which are located the principal direct retainers (Fig. 1, right). Prothero[4] termed this the "fulcrum line." The free-end base also tends to move laterally at its unsupported end, with the abutment tooth as the fulcrum. The sliding of the opposing occlusal surfaces on cuspal inclines, especially those not in balance, causes another movement of the base. The line of this rotation is through the occlusal rest and along the crest of the underlying ridge which supports the base (Fig. 1, right).

In these various movements, the appliance is, in reality, acting as the power arm of a lever. Functional stresses are magnified by this lever and, thus increased, will be projected to the abutment tooth which is acting as a support. The vertical movement of the base may result in a tilting of the abutment tooth in its alveolus, causing the abutment tooth to impinge upon the periodontal membrane. The lateral movement of the base at its free end causes a twisting

3. Kennedy, Edward. Partial denture construction. Brooklyn, N. Y., D. Items Interest Pub. Co., 1928.

4. Prothero, James H. Prosthetic dentistry, ed. 2. Chicago, Medico-Dental Pub. Co., 1916, p. 247.

stress (torque) which turns the tooth in its socket. When the base rotates along the line of the ridge crest (rocks), another tilting of the abutment tooth occurs, but in this instance against the lingual and buccal walls of the alveolus instead of the proximal walls. If these several stresses are successively projected against the abutment tooth, impingement of all areas of the periodontal structures may result. The degree of permanent damage will vary according to the ability of the tissue to assume a more than normal stress load.

Several factors influence the patient's reaction to these new stress loads. The most determinative of these is the patient's degree of susceptibility to alveolar atrophy.

EFFECT OF NEW STRESS LOADS

Where there is evidence of considerable loss of alveolar process, it may be difficult to decide whether or not partial denture service is the most logical restorative procedure. Many times, complete denture service is indicated at once. It is difficult to know just what advice to give the patient who may ask, "Is it advisable for me to try to keep these remaining teeth?"

Some authors say that the probable reaction of supporting bone to additional stress loads can be predicted on a basis of its apparent density, as shown roentgenographically. We believe that prediction based on such a determination is open to criticism for several reasons. A favorable response to such induced stress is seen in both dense and less dense bone structures. There is lack of agreement as to whether a dense bone structure will assume extra stress loads more favorably than the opposite type. (We believe that we can demonstrate more fine partial denture results among those cases showing a bone structure of the less dense type.) The apparent density of the alveolar process as shown in the roentgenogram can be made to vary by simply changing the angulation of the film or the exposure or processing time. Hence, the roentgenographic density of bone is a variable and as such is not a dependable measure upon which to base so important a prediction as its stability. There is also the possibility of a wide difference of opinion as to the degree of bone density revealed in a roentgenogram. An area that would seem dense to one interpreter might not be so classified by another. For these reasons, we have sought a more dependable way of determining the probable reaction of the alveolar bone to the stress loads which the partial denture may be expected to induce. Dental school clinical facilities have made it possible to study this problem on a rather large scale for several years. From this has come what has proved to be a dependable procedure in oral diagnosis, as it relates to the alveolar process in partial denture prosthesis.

A complete roentgenographic study is made of both dental arches, with special attention given to the alveolar process around the teeth which have sustained greater stresses than the other teeth in the dental arch. Such index areas are to be found supporting the teeth in which the following conditions have existed: (1) those which have been subjected to more than normal stress by having to assume the functional load of missing adjacent teeth; (2) those teeth which have been overloaded by stresses arising from occlusal interference or traumatic occlusion; (3) those teeth having increased stress loads due to the tooth being tipped (migrated) out of regular vertical position, so that the normal occlusal forces are magnified by the factor of leverage. If, in such areas, the previous response of the alveolar process to such increased stress loads has been favorable, it is a fairly safe indication that it will respond favorably to a future load which may be added by a partial denture. But, on the other hand, if the bone response has been generally poor in such key areas, then

the same or a worse result may be anticipated if the stress load is increased by a partial denture.

An added advantage of this method of bone determination is that a dependable prognosis can be made even though there may have been considerable variation in the roentgenographic technic. Determination of the apparent bone density, on the other hand, would be readily influenced by even a slight variation in the manner of exposing and processing the film. This is just another reason why it is felt that this method is not only more dependable, but also may be generally applied, with a surety of uniform results, even under the existing variation of roentgenographic technic as presently practiced.

Certain physical factors may influence the patient's reaction to stresses added by the partial denture. The first of these to receive consideration should be the amount of occlusal functional stress developed in the given case. If the biting force is great, owing to greater muscular activity, it may be advisable to reduce the extent of the occlusal table to be restored. It is always sound practice to reduce the amount of function in the interest of preserving "that which remains" for a longer period of useful service. It certainly is not good dental economy to replace maximum function for a short time at the price of losing much of the remaining oral structures so that, for the rest of the patient's life, only a minimum of dental function is possible.

Next in importance to the length and width of the occlusal table is its harmony with the opposing occlusal surfaces. This is, in reality, the greatest single factor having to do with stress generated by the partial denture. Cusps which are too high or cuspal inclines which are too steep can tremendously magnify the normal biting forces. Harmonizing the occlusal relations is the step in partial denture prosthesis where most can be accomplished toward bringing the stress loads within the range of the patient's tissue tolerance.

PERIOD OF GREATEST STRESS

The period of greatest stress definitely is related to the accomplishment of occlusal harmony. During the act of mastication, the production of occlusal stress is intermittent and the periods of applied force are of short duration. The effect of such work is one of stimulation and, therefore, is beneficial. If, however, the patient has the habit of clenching, gritting or biting his teeth during sleep the stresses generated can be not only much more severe but, because of their nature, much more destructive. This type of force may be sustained for long periods and the supporting tissues may be traumatized. Sleeping habits may produce varied jaw relations and the points of contact of the occlusal surfaces may be well outside of the normal functional range of mastication. If this is true, these occlusal contacts will not have been adjusted to a harmonious relation by the usual "spot-grinding." In fact, except in a sleeping posture, the patient probably may not be able even to contact these spots. Such high spots seem to attract the patient's "subconscious attention" and may actually induce the habit of gritting the teeth during sleep.

A recently developed technic, so applicable to the partial denture, in which the patient is allowed to wear a special wax occlusal rim during sleep, has much to recommend it as a means of reducing to a minimum the stresses generated. The appliance will have been finished, except for addition of the teeth, so that this wax rim is supported securely. After being worn by the patient (except when eating), an occlusal pattern of paths is produced which will record exact occlusal harmony in all jaw positions including the abnormal, eccentric ones assumed during sleep (Fig. 2, A). The adjustment of porcelain or acrylic teeth to a template

(Fig. 2, B and Fig. 3, left) made from this wax pattern will result in the complete elimination of malocclusal stresses (Fig. 2, C and Fig. 3, right).

IMPORTANCE OF THE BASE IN STRESS CONTROL

The chief support of the partial denture is the ridge tissue underlying its base. Therefore, the relationship of the denture to the subjacent tissue will be a principal factor in reducing appliance movement and the resulting torque and leverage stresses.

A supporting base should cover the maximum area. Its margins should be established just short of moving tissues—to encroach upon these would gain no additional support but might cause tissue injury and discomfort. As the base is increased in size, the work per unit of tissue area is reduced. This lessens the chance of overloading the subjacent tissue which in turn would cause resorptive change to occur and increase the amount of base movement.

Reduction of torque or leverage stresses transferred to the abutment supports will be dependent upon the quality of the base support as well as the area of coverage. Accuracy of the base adaption must be obtained and maintained to assure the minimum of appliance movement. This would place an emphasis on the importance of recording accurately supporting form of the tissue and of procuring a base free from volume change during or after construction. Unfortunately, when and if these two requirements are met, there remains the possibility of later tissue change owing to any one of several physiological disturbances. Because of this possibility, the usual con-

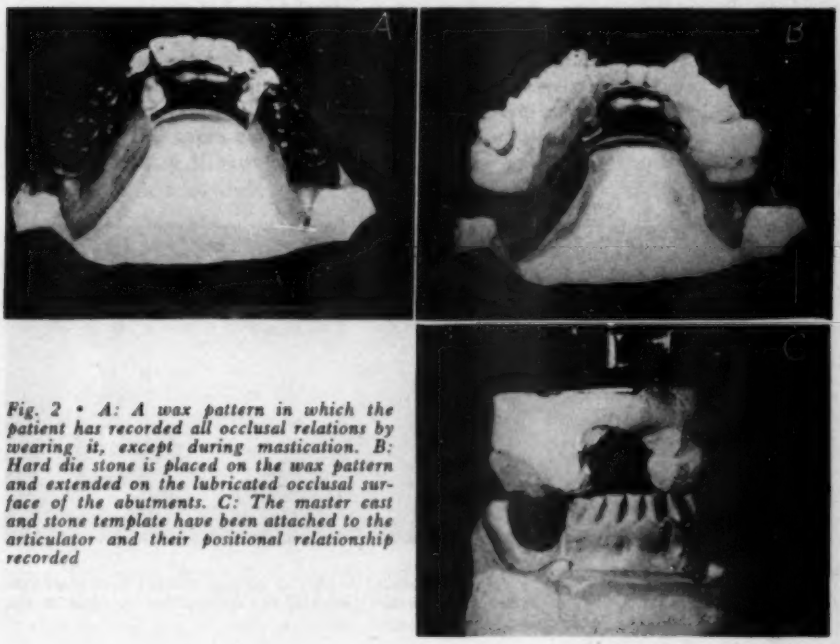


Fig. 2 • A: A wax pattern in which the patient has recorded all occlusal relations by wearing it, except during mastication. B: Hard die stone is placed on the wax pattern and extended on the lubricated occlusal surface of the abutments. C: The master cast and stone template have been attached to the articulator and their positional relationship recorded

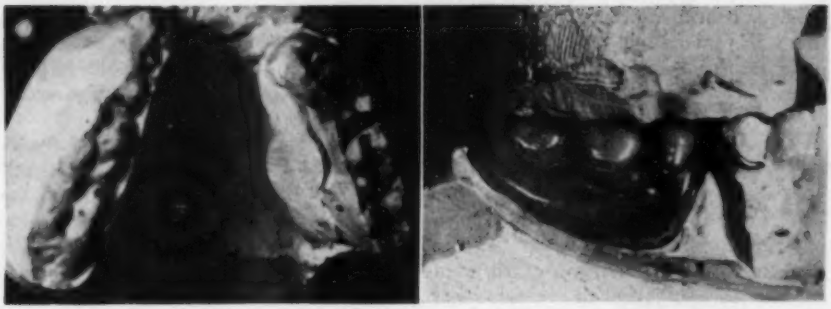


Fig. 3 • Left: The occlusal surfaces of the stone template. Right: Teeth being adjusted to the stone template are free of any malocclusal relations. Note that a definite stop exists between the template and some opposing teeth

struction of a partial denture base calls for the use of a rebasable composition material. At present, the material most commonly chosen is one of the resins.

Other than being more easily readapted after a tissue change has taken place, the resin base (Fig. 4, left) has the further advantage of being more economical to produce. Being lighter in weight than metal, the resin, for the construction of the maxillary partial denture, avoids more of the resulting gravity pull. This reduces the leverage on the abutments originating from movement of the base away from the tissue.

On the other hand, metal (Fig. 4, right) has the great advantage of possessing maximum strength with minimum bulk. This becomes an important consideration in those cases where the available tongue room has been reduced by vertical closure. Also, metal is more dependable than resin in the matters of accuracy of fit and of distortion or breakage during wear. Resin, even under ideal conditions of processing, is not entirely free from volumetric change and later warpage.

But a most important advantage of the metal base is that it is a much better

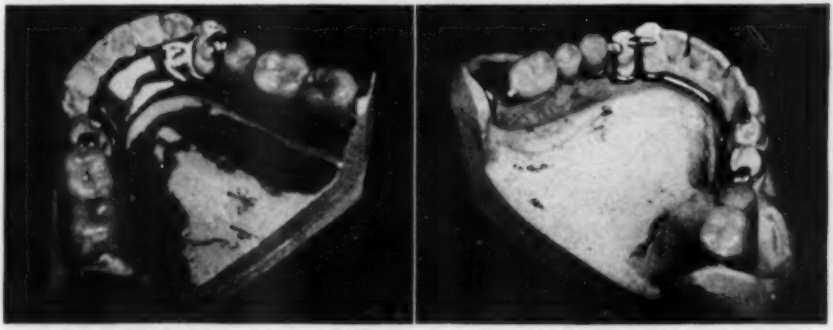


Fig. 4 • Examples of resin (left) and metal (right) as partial denture base materials. If the major connector, here shown in two forms of the lingual bar, is rigid, it can distribute stress loads effectively

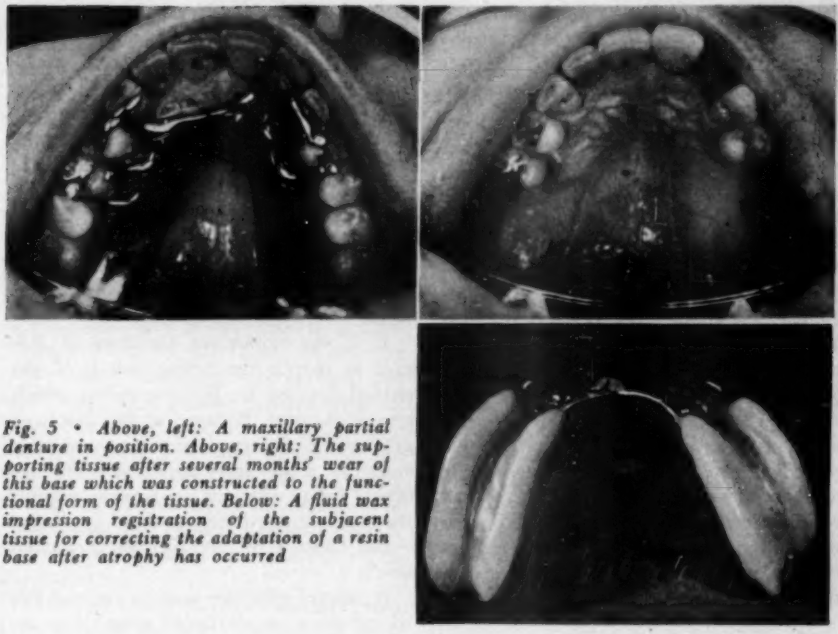


Fig. 5 • Above, left: A maxillary partial denture in position. Above, right: The supporting tissue after several months' wear of this base which was constructed to the functional form of the tissue. Below: A fluid wax impression registration of the subjacent tissue for correcting the adaptation of a resin base after atrophy has occurred

stimulant to the subjacent tissue. Because of its high thermal conductivity, metal gives to the subjacent tissue much more thermal stimulation than does resin. This is important because these tissues, which the base covers, are being denied the various types of stimuli resulting from the contact of tongue, food, hot and cold fluids to which they are ordinarily exposed. However, the chief advantage of metal over resin, in the matter of conductivity, is probably that of aiding the escape of body heat. The insulating action of resin has somewhat the effect of a rubber glove. It is our opinion that the ridge tissues are likely to be better preserved by the metal base, provided that it has been properly adapted to the supporting form of the tissues in the beginning. The need for much of the rebasing of partial denture saddles might be eliminated by the use of such a metal base (Fig. 5, above). However, there will always be encountered the occasional case where, because of a physiological disturbance, an atrophic change comes later. The chief reason for the choice of resin for most partial denture construction is that it is easily readapted after such a tissue change has taken place (Fig. 5, below).

RIGID MAJOR CONNECTOR

If the major connector is rigid (particularly the lingual bar) it will not flex in a way to produce an area of pressure impingement on the underlying tissue. But so far as the control of stress is concerned, if a major connector is rigid, it will be capable of transmitting stress loads effectively and, by this distribution, it lessens the concentration of induced stresses at certain areas in the dental arch. In addi-

tion to this benefit, the principle of leverage may be used to decrease torque stresses on the abutments, by having the terminal of a rigid major connector anchored as remotely as possible from the base which has a free end. This is the reason for making a Class II (Kennedy) partial denture bilateral in design (Fig. 6, left). However, in such a design it should be remembered that the flexibility of the connector increases with the additional length necessary in a Class II appliance to extend it to the opposite side of the arch. In order that it may remain rigid with this increased length, the diameter may be enlarged, its form may be altered or a less flexible alloy may be used. Frequently, a combination of these remedies may be applied to achieve a more rigid connector. One of the most common errors to be seen in partial denture design is the failure to obtain a more satisfactory stress control by the use of a rigid connector.

INDIRECT RETAINER

The indirect retainer may be described as the unit, or units, of a partial denture which, when located upon suitable surfaces of teeth as far as possible from the free end of the base (Fig. 6, left), will resist the movement of the base away from the surface of the supporting tissue. This unit should be supported in definite seats prepared on the teeth rather than by the soft tissues, if it is to have a maximum efficiency. Also, to make it more effective, it should be located as far as possible from the line of rotation (fulcrum line) which passes through the occlusal rests of the principal abutment teeth.

It is the important function of this unit to reduce the tilting action of the partial denture on the abutments which give it support. Because of the effect of gravity, this leverage occurs to a greater extent in a maxillary appliance. The necessity for its efficient use is more urgent, then, in the maxillary free-end appliance —the Class I or II (Kennedy) partial denture.

A second effective way to control this tilting stress on abutment areas, is to reduce the appliance weight to the minimum. One argument against the use of a metal base (particularly gold) is the increased gravity pull which, magnified by leverage, is transmitted through the ap-

Fig. 6 • Left: A bilateral design of a Kennedy Class II partial denture with one of the rigid major connectors (posterior palatal bar) anchored as remotely as possibly from the free end of the base. Right: Combination clasp with a flexible retentive arm (buccal of right first bicuspid) and rigid reciprocal arm (lingual of left second bicuspid). This type of clasp offers an effective approach to a stress-breaking control of forces transmitted through the partial denture

pliance to the tissues supporting the abutments. If metal is used, the base should be kept very thin. A light alloy which has the additional advantage of a much lower specific gravity should be used.

COMBINATION CLASP

The "combination" clasp is one in which the retentive arm is made of a flexible, wrought alloy in round form (Fig. 6, right). This arm is opposed by a rigid reciprocal arm of cast alloy, as are the other units of the clasp—the occlusal rest and body. The partial denture type of prosthesis will have some lateral and vertical movement of its base in spite of the best effort at stabilization. Some device, therefore, is necessary to eliminate or at least reduce the resulting stress before it reaches the abutment and the surrounding tissues.

Different forms of stress-breakers have been tried in the past. These have been variously effective but all have added to the complication and expense of construction, some of them to a very objectionable degree. It is the firm belief of the authors that the partial denture service of the future must be such that it can be rendered effectively by the largest number of dentists to the greatest number of patients. Such a program will necessitate a maximum of simplicity of construction coupled with a minimum of cost but always to be maintained on a level which is consistent with a true health service. A simple, inexpensive but effective approach to a stress-breaking control of the forces transmitted through the partial denture is by means of the combination clasp.

Since the retentive arm of this clasp is made of a wrought, round wire it is equally flexible in any direction. Either a torque or tilting force generated by the movements of the appliance will be dissipated by the flexing of this clasp arm (Fig. 6, right), instead of being passed on to the tooth and its tissue environs. The wrought arm of such a clasp has the added and practical advantage of being adjustable, in case there is a need of decreasing or increasing its retentiveness. This advantage over the cast clasp is important. Frequently in this way, it is possible to lessen the stresses developed at the time of inserting or removing a partial denture. While these forces are exerted only for the moment that the clasp is being flexed over the height of contour, nevertheless the repetition of such a stress over a long period of time will be damaging, particularly if it is excessive. One solution is an adjustable and a flexible retentive clasp arm, such as supplied by the combination clasp.

MULTIPLE ABUTMENT SUPPORT

Often it is necessary to use for abutment support teeth which have been weakened by a previous loss of some alveolar bone. It becomes exceedingly difficult to keep the stress loads, transmitted by the partial denture, within the tolerance limits of the remaining tissues in these cases. The stresses are magnified by the existing unfavorable leverage factor. With the reduction of the alveolar bone level around the remaining teeth, the length of the extra-alveolar portion of each increases and the portion of the root within the bone decreases. In other words, the power arm of the lever becomes longer and the work arm shorter. It must follow, then, that the stress load coming upon the remaining bone has been greatly increased over that which was transmitted before the bone level was reduced. Thus, even though every possible precaution has been taken to minimize the amount of induced stress, this will not be sufficient where alveolar atrophy has reached an advanced state. Frequently, it will be more conservative to extract such remaining teeth and render complete denture service at once. By doing this, unfavorable leverage is eliminated and more of the

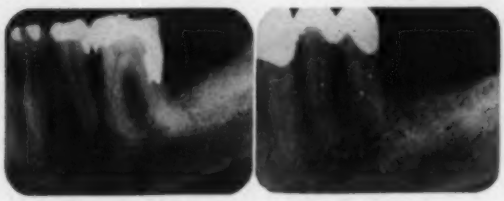


Fig. 7 • Left: In January, 14.5 per cent of the roentgen rays penetrated the bone in the bicuspid region. Right: Three months after the teeth were splinted, only 7.2 per cent of the rays penetrated the bone in the same region

bone is conserved for complete denture support.

A second phase of this condition is also to be listed on the unfavorable side. As the bone level of the alveolar crest is reduced, so also is the surface of the alveolar wall which is available for support of the root. The stress assumed by each square unit of bone surface becomes greater as the depth of the alveolus decreases. If the abutment happens to be a tooth which has a tapering root form, this decrease in the remaining area of the alveolus is rapid. The single, round root offers much less resistance to the torque or twisting type of stress. Where a round root form is coupled with a condition of alveolar atrophy, the wisdom of accepting such a tooth as an abutment support becomes questionable. Stress control actually starts at the diagnosis stage of partial denture service. The wise prosthetist will prescribe complete denture service for cases in which he knows that it is impossible to control the stress load which the contemplated partial denture is likely to induce.

There is one way of overcoming the foregoing situation, where there are especially urgent reasons for retaining the remaining teeth in a partially edentulous arch. This is by the use of multiple abutments. The most effective way of accomplishing a division of abutment work is by the actual union of two or more teeth. This is most frequently done by soldering adjacent restorations at their contact points. The same effect may be had by the use of a fixed bridge, uniting a tooth which is standing alone to another which is separated by only a one or two tooth space.

The result of such splinting of weakened teeth is comparable to the use of multirooted teeth as supports. Not only is the stress load divided over more units of supporting bone surface but much more resistance to twisting forces is also gained. Particularly when the prospective abutments have single, round and perhaps tapered roots is the benefit of splinting most apparent (Fig. 7).

Fixation of teeth by means of rigid union has long been decried but it is now the consensus of many conservative restorative dentists that this is a procedure to be hailed as a positive means toward conservation of weakened oral structures. Cohn[5] has shown cases, substantiated by roentgenographic evidence of the condition before treatment and then again years later, to demonstrate that splinting, rather than being harmful, may actually be accompanied by a remarkable improvement in the condition of the supporting tissues. Splinting by means of fixed attachments has at least one important advantage over union by a removable appliance. It has been pointed out earlier in this paper that stresses encountered during bruxism are most severe. If the partial denture has been removed the weakened teeth are subjected to this severe stress without the benefit of the removable splint. We agree with those who have been brave enough to defy convention and to advocate rigid

5. Cohn, Louis Alexander, unpublished reports.

union of teeth to supply abutments where conditions seem to warrant this procedure in the interest of conserving the supporting tissues. Damage which formerly has been attributed to the rigid union of teeth, in the light of present day knowledge, seems more likely to have been caused by lack of attention to some of the other measures of stress control.

SUMMARY

The free-end, extension type of dental prosthesis transmits to the supporting tissues stresses which may easily become destructive. To keep such stresses safely within the patient's tissue tolerance limits is a most urgent part of the service rendered by the prosthetist. It is evident that these stresses may be greatly augmented because in its movements the partial denture acts as a lever. Preventing such stress magnification is one of the most important phases of modern appliance design and construction.

To achieve the greatest possible preservation of the oral tissues in the partially edentulous dental arch and to assure the longest and most satisfactory service from a partial denture, frequent and regular inspection is imperative. As physical conditions of the patient change, adjustment of a partial denture borne by tissue and tooth must be made. Proper maintenance is a most important part of this prosthetic service. The replacement of teeth without the achievement of tissue preservation is not acceptable prosthetic accomplishment by modern standards.

The paralleling technic for intraoral roentgenology

Sam W. Williams, D.D.S., M.S.D., Minneapolis

Fourteen days after Roentgen's announcement that the new "x-ray" would penetrate solid substances hitherto impervious to actinic radiation, Otto Walkhoff of Braunschweig, Germany, made the first intraoral roentgenogram by placing a glass photographic plate wrapped in black paper and rubber dam in his mouth and exposing himself to 25 minutes of radiation. Needless to say the resultant roentenogram was of little diagnostic value. It did, however, stimulate great interest in the dental field.[1]

One year after Roentgen's discovery, C. Edmund Kells of New Orleans took the first diagnostic intraoral roentgenogram, and is now credited with being the father of dental roentgenology. Dr. Kells was so enthusiastic about his primary results that he presented a demonstration before the Southern Dental Association in July of 1906.

During the first five years of roentgenology, the fragile tubes were energized by static electricity. Variations in humidity and other atmospheric conditions greatly affected the efficiency of

Presented before the Section on Roentgenology, ninety-first annual session of the American Dental Association, Atlantic City, November 2, 1950.

1. Ennis, LeRoy M. Dental roentgenology, ed. 4. Philadelphia, Lea & Febiger, 1949, p. 15.

production. Calcium chloride was used by barrelfuls in an attempt to reduce the moisture content of the air. Even then, many hours were spent trying to coax the machines into action.

When the problem of inadequate film and the lack of technic to produce realistic images are considered, it is miraculous that the whole scheme was not discarded as an impossible task. Had it not been for such men as Kells, Raper, Simpson and McCormack—as well as the commercial manufacturers—the modern equipment and technics of today would have been only a dream.

The dental roentgenologist of today, using modern equipment, needs only to plug the machine into a 110 to 120 volt current; get a pre-exposure kilovolt reading and adjust to the proper factors by simply turning a control knob (usually one) and have a trial run to make sure the milliamperage delivered is the proper amount; then make the exposure. The ingenious electrical circuits used and the Coolidge dental x-ray tube simplify operation.

Early dental roentgenology was handicapped by the need for glass plates cut to fit the area to be surveyed. These plates had to be wrapped in black paper and rubber dam in the darkroom and handled with extreme care to insure against breakage and light leaks. Flexible celluloid films were vastly superior to the glass type plates. Even so, the dental roentgenologist was at a great disadvantage because the only film of this type available came in large sheets, which had to be cut to size and carefully wrapped in black paper and rubber dam to make them lightproof and moisture-proof.[2]

Until the Eastman Kodak Company produced the first intraoral dental film packet, the dental roentgenologists or technicians had to spend hours in the darkroom preparing the film for use.

The early celluloid type films were as temperamental as they were dangerous. The cellulose nitrate base was highly inflammable, and, under certain conditions, it was explosive. The emulsion was not bonded to the base securely and if the film was not handled with extreme care, the emulsion would peal off or become damaged. To help protect the delicate emulsion, the processed films were mounted with the emulsion side of the film against thin frosted celluloid sheets.[2] These films were placed so that the reader read the roentgenograms as though he were sitting on the patient's tongue, looking out.[3] The advent of the double emulsion type film caused much confusion in the dental profession because it was much tougher and did not need the celluloid protection. The films could be mounted with the tube side of the film facing the reader, and he in turn read the films as though he were looking directly into the mouth. This technic is now taught in all dental schools.

The old type film was slow; consequently long exposures were necessary. In many instances the patient could not or would not remain stationary long enough to permit proper exposure. The present-day rapid film is a great improvement, not only because of decreased exposure time, but also because of contrast between whites and blacks.

It has been felt in the past that an increase in the speed of a firm greatly increases the coarseness or graininess of the negative. This, however, is not completely true. In general, the smaller grain size is associated with the slower films. Regular or radiatized dental films have similar grain characteristics; whereas the rapid processing and the ultraspeed dental films are somewhat coarser grained in the order mentioned. The actual size of the individual grains, however, is of no practical significance in the performance

2. Wendell, L. The systematic development of x-ray films and plates. St. Louis, C. V. Mosby, 1919, p. 63.

3. Price, W. A. The technique necessary for making good dental skiagraphs. D. Items Interest 26:161 (March) 1904.

of these films. In photographic emulsions the individual grains are not evenly distributed, but vary in their spacing from each other, forming a clumping effect. Under relatively low magnification, this effect can be observed as an impression of graininess. In regular, radiatized and rapid processing films this effect of graininess can be observed with the naked eye, but does not affect roentgenographic detail in any apparent degree. The graininess of the ultraspeed or superspeed dental film is not noticeable to the naked eye, except under careful observation. In my opinion, it would not be noticed in any practical diagnostic use as far as the film itself is concerned and does not appreciably affect roentgenographic details. The superspeed or ultraspeed film was designed mainly for the long cone technic, and it is believed that the use of the rapid or ultraspeed film in that technic does not involve any loss in roentgeographic detail arising from its grain characteristics.[4]

From the time Dr. Kells took the first intraoral dental roentgenogram until Howard Raper[5] perfected the bisecting angle technic, intraoral roentgenography was a hodgepodge of ideas and miscalculations. The dental roentgenographic images in many instances were so grotesque, interpretation with any degree of accuracy was almost impossible.

BISECTING ANGLE TECHNIC

Dr. Raper's bisecting angle technic was a vast improvement over previous technics. However, routine full mouth roentgenography is still in a more or less metamorphic stage. Various technics and apparatus have been used to secure accurate shadow reproductions of the oral structures.

The bisecting angle technic projects the central beam of radiation perpendicular to the bisecting angle formed by the long axis of the tooth and the plane of the film.[6] To simplify this procedure, average angles are employed which have been found sufficient to produce the shadows of the structures in question. Unfortunately, the vast variations in tooth alignment place this technic in a hit-or-miss category.

Little or no thought is given to one of the most important phases in all types of roentgenography, target film distance. All modern standard dental roentgenographic units come equipped with a cone which produces a film target distance of 7 to 8 inches. With this short film target distance, the amount of adumbration (overshadowing and magnification) and distortion is much greater than when the film target distance is increased a mere 4 inches.[6] A simple illustration substantiates this statement (Fig. 1).

Combining the short film target distance with the bisecting angle technic produces dental roentgenograms which, for the most part, are poor reproductions of the true dental structures in question. Proof of this can be shown by a simple schematic drawing combining the use of a short film target distance in the bisecting angle technic (Fig. 2).

As can be seen from Figure 2, the shadows of the various structures cast upon the film do not fall in their proper place with respect to the tooth itself. Figure 3, left also shows how structures are overshadowed by the zygoma, and how the occlusal surface is looked upon rather than across. Figure 3, right shows how tooth structures appear when the paralleling technic is used.

The trained operator knows that for the most part the problem of full mouth roentgenography has to call upon the bisecting angle technic; for at the present time it is all he has at his command to

4. Mees, C. E. K. The theory of the photographic process. New York, Macmillan Co., 1942, ch. 4.

5. Raper, Howard R. Elementary and dental radiography. New York, Consolidated Dental Mfg. Co., 1913, p. 107.

6. Frank, Leonard. A long distance and low penetration technique for dental x-ray units. D. Digest 44:114 (Jan.) 1938.

produce consistent results. Consequently, the dentist has to rely entirely upon his intuition and mind's eye to interpret his roentgenograms.[7] This has led to much confusion in interpretation, especially for students.

To use the bisecting-angle technic successfully, the operator must follow it to the letter, for any deviation from directing the central beam of the x-ray perpendicular to the bisecting line results in the elongation or foreshortening of the images.[8]

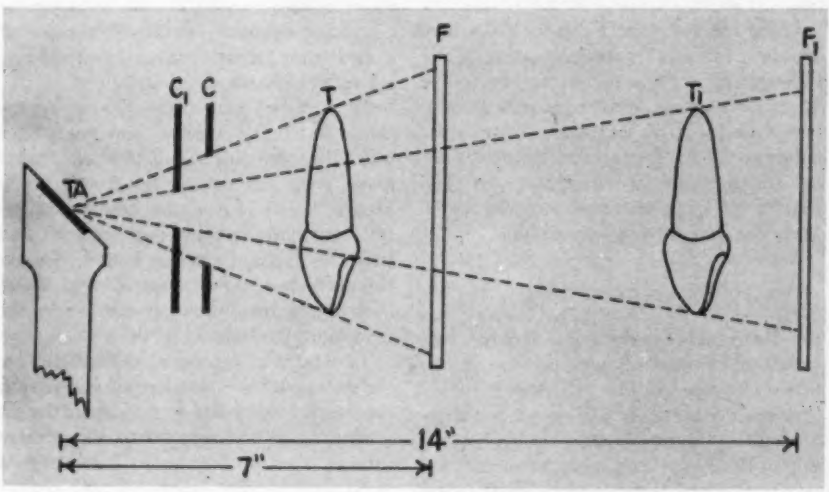
Even the slightest deviation from the normal in this technic produces faulty images. Consequently, accurate angles have to be used. To secure these accurate angles, the operator must be able to determine in his mind's eye the long axis of the tooth and the plane of the film. Even though this is difficult, it can be visualized. But to bisect that angle and form an imaginary line upon which another imaginary line is directed is next to impossible. To overcome this dilemma, average angles are used; which only increases the margin of error, for no two mouths are the same.

Another fallacy which has been foisted upon the dental profession is the use of the pointed cone which was said to give the operator a better sight with which to direct the rays. Unfortunately, this is not true, because a point is much more difficult to place in a given plane than the plane itself.

A technic which will be applicable to the average dental office with the mini-

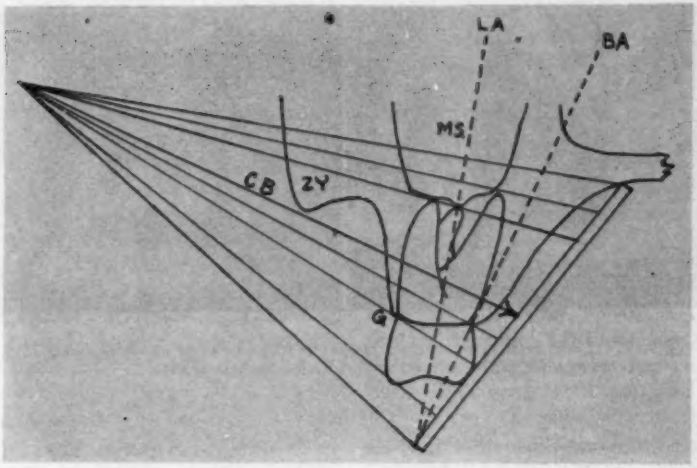
7. Fitzgerald, G. M. Dental roentgenography. II. Vertical angulation, film placement and increased object-film distance. J.A.D.A. 34:160 (Feb. 1) 1947.

8. Fitzgerald, G. M. Dental roentgenography. I. An investigation in adumbration or the factors that control geometric unsharpness. J.A.D.A. 34:1 (Jan. 1) 1947.



TA—target of x-ray tube
C—cone of machine with large diaphragm
T—tooth
F—film at 7 inches
C_1—cone of machine with small diaphragm (limits excess radiation)
T_1—tooth
F_1—film at 14 inches

Fig. 1 • The amount of adumbration and distortion is much greater with a short film target distance than when the film target distance is increased



ZY—zygoma
MS—maxillary sinus
G—cervical line

LA—long axis of the tooth
BA—bisecting angle
CB—central beam of x-ray

Fig. 2 • Combining the short film target distance with the bisecting angle technic produces poor reproductions of the true dental structures

mum of equipment and time presents a problem.

The first phase is the increased film target distance. It will be shown that the greater the film target distance, the sharper the shadow cast upon the film. Therefore, if a film target distance of 72 inches, such as is used in chest roentgenography, could be used sharply detailed shadows would be produced. The use of such a great distance as this is impractical, however: (1) because of lack of space in the average dental office; (2) because of lack of capacity of the dental roentgenographic unit, which operates for the most part at 10 milliamperes and 65 kilovolts, and the speed of the dental film; (3) because of the difficulty that would be encountered in the placement of the x-ray tube so as to direct the central beam of radiation upon the middle of the small intraoral dental x-ray film. Experimentation has shown that the ideal film target distance which can be used in the average dental office is 14 to 15 inches. Standard cones, which will give a film target distance of 14 inches, are known as sinus cones, or eye, ear, nose and throat cones, and can be procured for any dental roentgenographic unit from the dental supply houses. The cost is nominal, and the changing of cones is a simple operation which can be done in a matter of a few seconds.

Work was done with the 22 inch film target distance; but it was found that the cone which had to be used was both costly and impractical from the standpoint of ease of operation and procurement. The average dental office is so constructed, because of the lack of space and placement of necessary equipment, that the 22 inch technic necessitates many changes in chair position to complete the routine survey. In some offices the 22 inch technic cannot be used because of the great length of the cone.

Fig. 3 • Left: Structures as they appear in the bisecting angle technic. Right: Same structures as they appear when the paralleling technic is used

Three roentgenograms show how detail increases as the film target distance increases (Fig. 4).

It will be noted that the difference between the 7 inch film target distance and the 14 inch film target distance is much greater than the difference between the 14 inch and the 22 inch film target distance. Consequently, it is felt that the 14 inch film target distance is the practical distance to use.

The second phase of the problem, which enters all roentgenography, is the object film distance. In the standard bisecting angle technic the object film distance is more or less predetermined by the patient's own peculiarities insofar as his oral anatomy is concerned because the intraoral dental x-ray film is placed directly against the lingual tissues. In medical roentgenography, object film distance is one of the cardinal factors in securing clear, sharp diagnostic roentgenograms.[9] Consequently, its place in dental roentgenography should also be of great importance. It is known that the greater the distance the x-ray film is placed away from the object, the greater the degree of magnification. It follows then that the opposite is true when the object film distance is at a minimum. A simple schematic drawing illustrates this fact (Fig. 5).

In using a short film target distance, as is used in the bisecting angle technic, the object film distance is in reality the prime factor in the production of clear, sharp roentgenograms. It has previously been shown that the short film target distance necessitates a cone with a very large diaphram and a great divergency of rays to cover the object. Therefore, when the film is moved away from the object, the amount of distortion is actually multiplied. However, by using an increased film target distance, the object film distance can be increased a slight amount with little or no apparent change in the sharpness of the shadow image cast upon the film. Figure 6, A shows a screen in contact with the film and a film target distance of 7 inches. Figure 6, B shows a screen 1 inch away from the film and a film target distance of 7 inches. Note the unsharpness of the shadow of the screen in Figure 6, B. Figure 6, C shows a screen in contact with the film and a film target distance of 14 inches. Figure 6, D shows a screen 1 inch away from the film and a film target distance of 14 inches. Note how little change has taken place between Figure 6, C and Figure 6, D; also note

9. Muncheryan, H. M. Modern physics of roentgenology, ed. 2. Los Angeles, Wetzel Publishing Co., 1940.

the great difference between Figure 6, B and Figure 6, D.

This phenomenon can be explained by the fact that the greater the film target distance, the greater the object film distance can be. The object film distance in the 14 inch technic also has its limitations. Any increase in object film distance beyond 1½ inches is too great when using the 14 inch film target distance. Fortunately, however, the object film distance is never more than 1½ inches in the paralleling technic. Therefore, clear, sharply detailed roentgenograms can be produced.

PARALLELING TECHNIC

The paralleling technic has been evolved with three ideas in mind: (1) a technic which will produce diagnostic dental roentgenograms which are truer shadow reproductions of the oral structures; (2) a technic the dental practitioner can put into use in his office with a minimum of equipment and expense; (3) a technic of simplicity which can be taught to the practitioner as well as the student, and which will give constant results with a minimum of effort.

Because this technic employs an increase in the film target distance, the time factor has to be increased. If a fast film, such as the "D1" film, is used, and if a roentgenogram of an upper molar is taken at a film target distance of 7 inches, the average exposure time is two and three-fourths seconds. Therefore, to secure the same roentgenographic density on the same type of film and to double

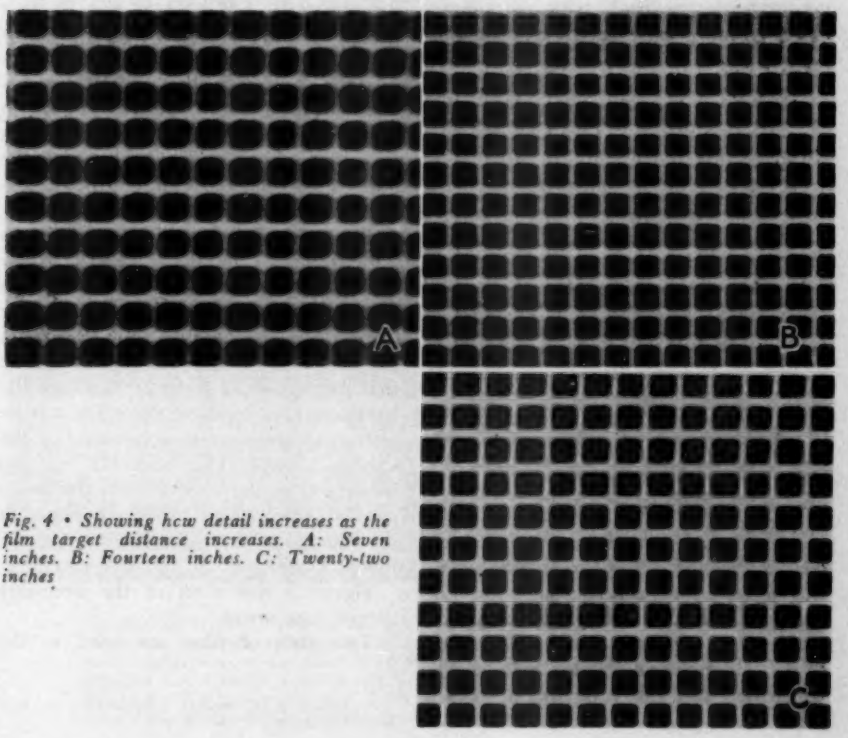


Fig. 4 • Showing how detail increases as the film target distance increases. A: Seven inches. B: Fourteen inches. C: Twenty-two inches

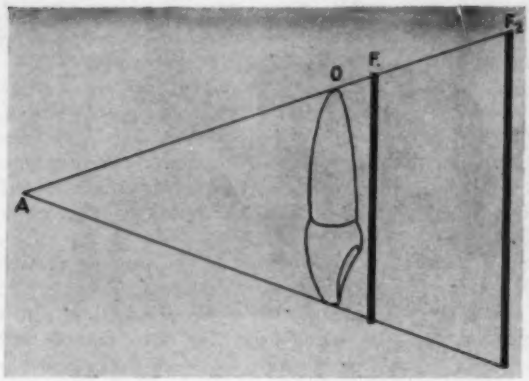


Fig. 5 • The greater the distance the film is from the object the greater the degree of magnification. When the object film distance is at a minimum the degree of magnification is less

the film target distance to 14 inches, one would assume the inverse square law of roentgenographic density would come into play. The law states, "Radiographic density varies inversely with the square of the distance, all other factors remaining the same. For example, doubling the distance gives only one-fourth the density. Halving the distance, gives four times the density."[10] Consequently, by doubling the film target distance to 14 inches from 7 inches and using the same type of film and the same patient with the same milliamperage and kilovoltage, the exposure time should be 11 seconds—four times two and three-fourths seconds. Fortunately this is not true. The proper exposure time is four seconds—not quite double the two and three-fourths seconds used in the 7 inch film target distance.

The remaining exposure factors—that is, kilovoltage setting and milliamperage setting—are constant and are not changed from the 7 inch target distance technic.

The special equipment used in this technic includes the previously mentioned sinus cone, a hemostat, a no. 3 or no. 4 rubber cork with a hole in it, such as is used in chemistry laboratories, a box of no. 3 cotton rolls, and a metal backing which can easily be made from a piece of 26 gage German silver, or any other piece of metal which will be stiff enough to keep the film from bending. The lower edge of this backing is bent at a right angle to form a ledge on which the film rests. The backing is 1/16 inch short of the upper edge of the film when the film is held horizontally and is considerably narrower than the long measurement of the film. It is advisable to select a hemostat with fairly wide beaks so a better hold of the backing on the film can be secured. The Carlmalt forceps is recommended.

The rubber cork is flattened on two sides directly opposite from each other to keep it from rolling from side to side when the patient bites upon it. The hemostat is placed through the hole in the flattened rubber cork far enough so that the beaks can grasp the film and the backing. The depth of insertion can be altered at any time to accommodate the various mouths. The hemostat can also be turned in the cork so that the beaks can be adjusted to place the plane of the film parallel to the long axis of the tooth.

Figure 7 shows all of the necessary special equipment.

Two sizes of films are used in the

10. Jerman, E. C. Modern x-ray technic. St. Paul, Bruce Publishing Co., 1929, p. 110.

paralleling technic. The standard intraoral no. 1 film, which measures 1 5/8 by 1 3/16 inches, is used in the examination of all molar and bicuspid teeth. The narrow anterior film, which measures 1 5/8 by 3/4 inches, is used in the examination of all anterior teeth. A narrow film is used in the anterior region because the film can be placed in the mouth without danger of bending it and it covers just enough of the area in question to give a sharp roentgenogram of the entire region. Unfortunately, the no. 1 film, when used in the anterior region in most mouths, is so wide that the long edges of the film touch tissue, while the body of the film is held away from the tissue, creating a definite lack of detail and definition of approximately 1/4 inch on either side of the long axis of the film. The wide film is bent to conform to the contour of the anterior palatal region by the patient as he holds it with his finger, which results in a distorted roentgenogram. A classic example of this type of distortion which takes place in this sit-

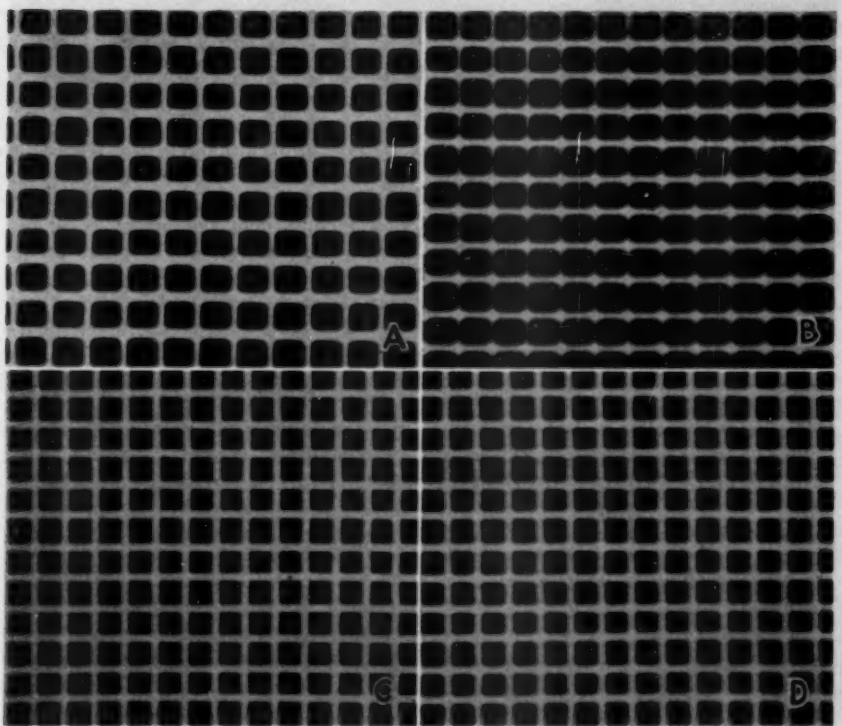


Fig. 6 • A: Screen in contact with the film and a film target distance of seven inches. B: Screen one inch away from the film and a film target distance of seven inches. Note unsharpness of the shadow of the screen in B. C: Screen in contact with the film and a film target distance of fourteen inches. D: Screen one inch away from the film and a film target distance of fourteen inches. Note how little change has taken place between C and D, and the greater difference between B and D

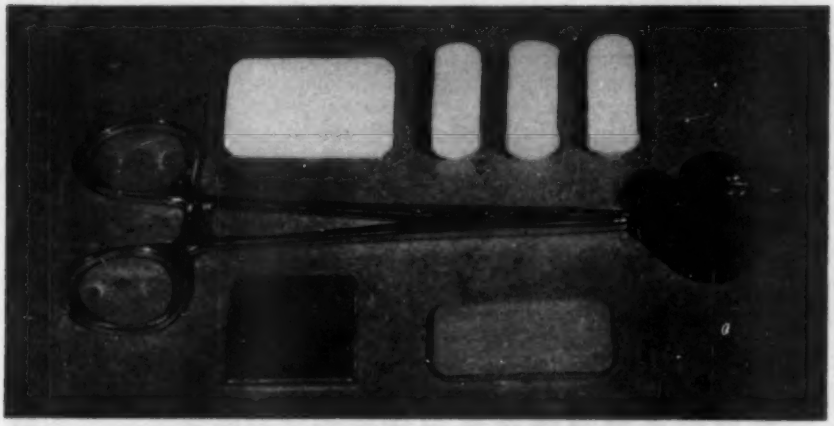


Fig. 7 • Special equipment used in the paralleling technic

uation is the grotesque image a person sees when viewing his image reflected from curved mirrors such as are seen in amusement parks. It is not absolutely necessary to procure special narrow film, because the no. 1 intraoral film can be folded to approximate the size of the narrow anterior film.

The use of the narrow film does, however, necessitate the taking of one more roentgenogram; but each roentgenogram is diagnostic over its entirety, and actually a better examination results because each interproximal space is viewed twice, each time from a slightly different angle.

The technic of film placement, placement of the x-ray tube and the scope of examination of each intraoral region is presented.

Maxillary Teeth • For the central and lateral incisors the scope of examination is as follows. Mesiodistally it includes the mesial contact point of the adjacent central incisor, all of the central incisor and as a rule all of the lateral incisor. Incisoapically it covers a border ⅛ inch beyond the incisal edges and as far beyond the apexes as the film will go.

Two no. 3 cotton rolls are placed on the tube side of the film between the film and the tissue. The film should be a half inch beyond the cotton rolls apically so that the film will touch the palate and the cotton rolls will hold the film away from the teeth under examination. By doing this, and having the patient's finger placed against the film at the junction of the film and the palate, the cotton rolls will hold the film parallel to the long axis of the tooth. The film is placed directly behind the region to be examined (Fig. 8, A).

The open end of the cone is placed parallel with the plane of the film both vertically and horizontally (Fig. 8, A). The central beam of radiation is directed through the contact of the central and lateral incisors mesiodistally, and is directed at the gingival margin incisoapically.

For the cuspid region the scope of the examination includes the mesial contact of the lateral incisor, all of the cuspid and the mesial contact of the first bicuspid, mesiodistally. Incisoapically, it includes a border ⅛ inch beyond the incisal edge of the cuspid and as far beyond

the apexes of the teeth as the film will go.

Film placement is the same as in the central and lateral incisor examination.

The open end of the cone is placed parallel to the plane of the film both vertically and horizontally. The central beam of radiation is directed at the middle of the cuspid, mesiodistally, and it is directed at the gingival margin incisoapically (Fig. 8, B).

Scope of examination of the bicuspids covers, mesiodistally, the distal contact of the cuspid, all of the first bicuspid, all of the second bicuspid and as much of the first molar as possible. Occlusoapically, it includes a border ⅛ inch beyond the occlusal surfaces and as far apically as the film will go.

There are two methods of film placement. In the first method metal backing can be placed against the lettered side of a no. 1 film in the horizontal position and grasped with the hemostat which has been placed through the rubber cork at the mesioocclusal corner of the film (both the metal backing and the film are grasped by the beaks of the hemostat). The film is placed in the mouth so that the upper edge touches the tissue and is beyond the mid-suture line of the palate. The hemostat is adjusted so that the film is parallel to the long axis of the tooth, vertically, and parallel to the horizontal alignment of the teeth in question, horizontally (Fig. 8, C).

The open end of the cone is placed so that it is parallel to the plane of the film both horizontally and vertically. The central beam of radiation is directed between the contact points of the first and second bicuspid, horizontally, and at the gingival margin, vertically (Fig. 8, C).

In the second method the cotton rolls are used. In some mouths the hemostat is impractical, especially if the palate is broad and low and if the anterior teeth are lost. The scope of examination and x-ray tube placement are the same as in the first method. The only change that is made is that a no. 3 cotton roll is placed a quarter of an inch up from the bottom edge of the film while held in the horizontal position. This roll is placed on the tube side of the film and is held against the tissue by the light pressure the patient exerts against the film as he holds it in his mouth with his index finger. The cotton roll will hold the film away from the teeth the desired distance and the film can be placed parallel to the long axis of the teeth in question.

For the molars the scope of examination, mesiodistally, covers the distal contact of the second bicuspid, all of the first molar, all of the second molar and all of the third molar, if it is in normal position. Occlusoapically, it includes a border ⅛ inch beyond the occlusal surfaces and as far apically as the film extends.

Film placement is the same as in the bicuspid examination, except it is placed more distally. The two methods of film placement used for bicuspids can be used (Fig. 8, D).

The end of the cone is placed parallel with the plane of the film both vertically and horizontally (Fig. 8, D). The central beam of radiation will be well under the inferior border of the zygomatic process. The central beam of radiation is directed at the distal contact of the first molar, horizontally, and at the gingival border, vertically.

Mandibular Teeth • When examining the central and lateral incisors the mesiodistal examination covers the mesial portion of the adjacent central incisor, all of the central incisor, all of the lateral incisor and as much of the cuspid as possible. Incisoapically, it includes a border ⅛ inch above the incisal edges and as far apically as the film will go.

Two no. 3 cotton rolls are placed on the tube side of the narrow anterior film. The film is placed directly behind the region to be examined, with the cotton rolls between the film and the lingual

tissue. The cotton rolls are placed half an inch short of the inferior border of the film, and the film is held with the patient's index finger at the junction of the film and the floor of the mouth. The film will, in most instances, be parallel with the long axis of the tooth; if not, it can be adjusted so that it is parallel by moving the superior border of the film either labially or lingually. Anatomically, the shallowness of some mouths makes it necessary to use a third cotton roll, which is laid upon the superior edge of the film and is held by the operator. Then the patient is instructed to close his teeth. As he closes, the opposing teeth strike the third cotton roll, which in turn pushes the film deeper into the floor of the mouth. The operator then releases his hold on the third cotton roll. The pressure of the patient's finger and the opposing teeth biting on the cotton roll is sufficient to hold the film in position (Fig. 9, A).

When the third cotton roll is used the natural pressure of the opposing teeth and the relaxation of the floor of the mouth cause the film to go deeper in the mouth.

The open end of the cone is placed parallel both vertically and horizontally with the plane of the film. The central beam of radiation is directed mesiodistally between the contact of the central and lateral incisor and toward the gingival margin, incisoapically.

For the cuspid region the scope of examination, mesiodistally, covers as much of the lateral incisor as possible, all of the cuspid and, as a rule, all of the first bicuspid.

Film placement is the same as in the

Fig. 8 • Film placement and placement of the x-ray tube for examining the maxillary teeth. A: Central and lateral incisors. B: Cuspid. C: Bicuspids. D: Molars

central and lateral incisor examination (Fig. 9, B).

The open end of the cone is placed parallel with the plane of the film vertically and horizontally. The central beam of radiation is directed at the middle of the cuspid, mesiodistally, and at the gingival margin, incisoapically (Fig. 9, B).

Scope of examination, mesiodistally, for the bicuspids covers the distal contact of the lower cuspid, all of the first bicuspid, all of the second bicuspid and as much of the first molar as possible.

There are two methods of film placement. The first method uses the no. 1 size film and one no. 3 size cotton roll, which is placed with the long axis of the film on the tube side. The film and cotton roll are inserted horizontally in the mouth and held by the patient's index finger with the cotton roll between the tissue and the film so that the film will be parallel with the long axis of the bicuspids. The examination includes a border ⅛ inch above the bicuspids occlusally and as far apically as the film will go. The second method uses the no. 1 size film and two no. 3 size cotton rolls, which are placed with the long axis of the film on the tube side of the film. The cotton rolls and film are inserted vertically in the mouth and held by the patient's index finger. In this method the third cotton roll is used as described previously to force the film deeper into the floor of the mouth (Fig. 9, C). This method is used because in many mouths the curvature of the teeth in cuspid and bicuspid region is so great

Fig. 9 • Placement of the film and x-ray tube for examination of the mandibular teeth. A: Central and lateral incisors. B: Cuspid. C: Bicuspids. D: Molars

that the film, when held in a horizontal position, will not cover the distal contact of the cuspid without being bent to conform with the curvature. In trying to force the film anteriorly to cover the distal contact of the cuspid, the anterior inferior corner of the film is pressed sharply against the sensitive thin tissue in the floor of the mouth where it reflects upon the lingual surface symphysis of the mandible, causing discomfort to the patient.

The open end of the cone is placed parallel with the film both vertically and horizontally. The central beam of radiation is directed between the contact of the bicuspids, horizontally, and at the gingival margin, vertically.

Mesiodistally, examination of the molars covers the distal half of the second bicuspid, all of the first molar, all of the second molar and, as a rule, all of the third molar if it is in normal position. It includes a border ⅛ inch above the occlusal surface and as far as the film will go, apically.

The film is placed directly against the tissue in the horizontal position and then held by the patient's finger (Fig. 9, D). This is the only time the film is held directly against the tissue, the reason being that the long axis of the teeth and the lingual portion of the mandible in the molar region are, in most instances, almost parallel.

The open end of the cone is placed parallel with the film both vertically and horizontally. The central beam of radiation is directed between the contact of the first and second molars, horizontally, and at the gingival margin, vertically (Fig. 9, D).

Figure 10 shows the direction of the central beam in the various examinations.

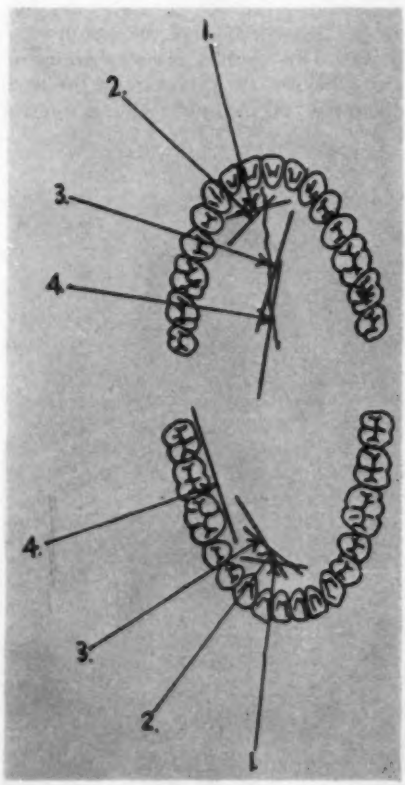


Fig. 10 • Direction of central beam of radiation in the various examinations: 1, central and lateral incisors; 2, cuspid; 3, bicuspids; 4, molars

COMMENTS

1. In the upper bicuspid and molar examination, when the hemostat is used, the superior border of the film should be beyond the mid-suture line at all times. Otherwise the apical portion of the teeth in question will not be shown.

2. In the upper bicuspid and molar examination, if the patient has an extreme overbite, it will be necessary to have him protrude his lower jaw so that the lower anterior teeth will strike the rubber cork when he bites.

3. Many times in the upper and lower cuspid examination the distal contact of the cuspid is obscured by the mesial por-

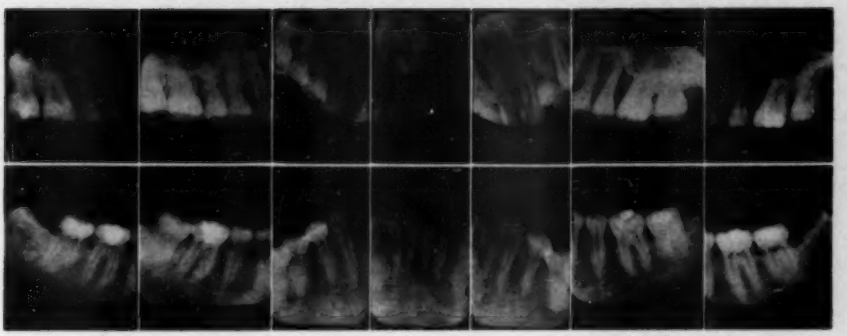


Fig. 11 • Full mouth survey taken with the bisecting angle technic using standard exposure factors

tion of the first bicuspid if the central beam of radiation is directed too far anteriorly. The cuspid, even though it is an anterior tooth, lies in the same plane, as far as the labial surface is concerned, as the bicuspids and molars, and should be roentgenographed accordingly.

4. Some patients have trouble controlling their tongues when the film is placed in the floor of the mouth. This can be controlled by placing the film flatly against the tongue and pushing the tongue out of the way at the same time the film is slid into position.

5. For patients who gag easily, the use of the hemostat technic in the maxilla is much more successful than the cotton rolls. Only one small edge of film touches the palate. If the patient does start to gag, he can be instructed to close more forcibly on the rubber cork. The sensation of the increased pressure caused by the rubber cork on his anterior teeth will in most instances relieve the gag reflex entirely.

6. The last and most important helpful hint is repetitious, but it is the essence of the whole technic, which is

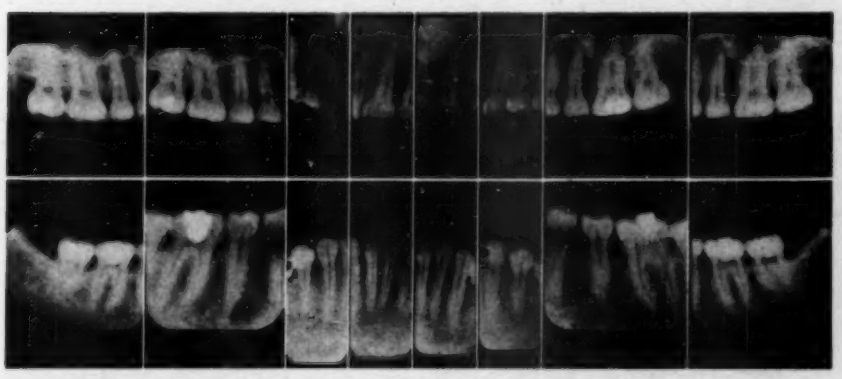


Fig. 12 • Full mouth survey of same patient shown in Figure 11, using the paralleling technic and the exposures necessary for this technic

paralleling. The open end of the cone, the long axis of the tooth, the horizontal and vertical alignment of the teeth and the two planes of the film all should be parallel.

In using the paralleling technic, the results which can be expected are as follows: (1) Truer shape and size of the dental structures. (2) More diagnostic alignment of the teeth. (3) More sharply detailed roentgenograms. (4) Much less chance of overlapping teeth. (5) The undesirable shadow of the zygoma in the upper molar and bicuspid projection is not cast on the roentgenogram. (6) Interdental spaces are opened up. (7) No elongation or foreshortening of upper molar roots. (8) One can see directly through the coronal portion of a tooth at right angles to the long axis; therefore, better visualization of recurrent caries under fillings. This is especially advantageous in determining the exact fit of the gingival margin of cast gold restorations. The exact depth of pyorrhea pockets can be visualized. (10) The extent of alveolar atrophy can be readily seen.

To substantiate the claimed results, two full mouth roentgenographic surveys are submitted. Each set has been taken on the same individual, using the same kind of film (except in the anterior region), and the same darkroom technic. The only variations in the two surveys are: (1) one set is taken with the bisecting angle technic, using standard exposure factors (Fig. 11); (2) the other set is taken by using the paralleling technic and the exposure factors necessary for this technic (Fig. 12).

801 LaSalle Building

Incidence of subluxation of the temporomandibular joint

James E. Bauerle, D.D.S., M.S., Washington, D. C., and W. Harry Archer,† D.D.S., M.S., Pittsburgh*

Subluxation of the temporomandibular joint is a problem that confronts each dentist in his everyday practice. The average dentist usually admits that such a condition is a definite challenge because of the different causes and symptoms. Most practitioners are unaware of the frequency of occurrence of temporomandibular joint subluxation.

The purpose of this paper is to determine statistically, by the examination of 1,200 unselected persons in the age range of 6 to 80, the incidence of one or more clinical symptoms of subluxation of the temporomandibular joint. It should make the average dentist more conscious of the incidence of the condition and inspire him to become more familiar with the predisposing causes so that he may prevent subluxation in many of the patients that he examines daily.

Presented before the Section on Oral Surgery combined with the Section on Research, ninety-first annual session of the American Dental Association, Atlantic City, November 2, 1950.

Based on work performed by Dr. Bauerle in partial fulfillment for the degree of Master of Science at the School of Dentistry, University of Pittsburgh.

*Captain (DC), U.S. Army Reserve, oral surgery section, Walter Reed Army Hospital, Army Medical Center, Washington, D. C.

†Professor of oral surgery and anesthesia, School of Dentistry, University of Pittsburgh.

Subluxation of the temporomandibular joint is usually defined as a self-reducing, incomplete dislocation of the joint. However, as Salman[1] has noted, the cases of self-reducing, complete dislocation should be included in this definition. These are luxations by definition; yet clinically, the jaws do not lock and can be closed without manipulation. Markowitz and Gerry[2] made this distinction between subluxation and luxation by the interpretation of roentgenograms: if the condylar head is found to be in front of the articular eminence but not in a superior position, it is considered an incomplete dislocation or a subluxation; if the condylar head is found to be in a position anterior and superior to the crest of the articular eminence, it is considered a true dislocation or a luxation. By correlating clinical findings with roentgenograms of self-reducible dislocations, we found it impossible in many instances to classify certain cases as to the degree of dislocation by clinical examination alone. While normal temporomandibular joints follow the same structural pattern, roentgenograms demonstrate that the shape and contour of the glenoid fossa, the articular eminence and the head of the condyle may vary in the same individual. All of these differences of the component parts of the joint must be viewed from the aspect of being one or more of the predisposing causes of subluxation. Luxation is usually defined as a complete dislocation of the joint and is thought of in terms of being reducible only by manipulation on the part of the patient or dentist. Schultz[3] uses a descriptive term, hypermobility, for any condition of the temporomandibular joint whereby more motion than normal is found. This term can be used to describe adequately any type of a self-reducing dislocation of the joint.

The literature reveals that few investigators have reported on the incidence of this condition. Brussell[4] reported that symptoms involving the temporomandibular joint are not uncommon. In 1938 he examined 76 unselected persons of a senior dental class and found 63 per cent had two or more clinical, progressive symptoms involving the temporomandibular joint. In 1947 he found 57 per cent of a group of 85 members of another senior dental class had two or more clinical symptoms. He also conducted other surveys. He concluded from all his work that symptoms of a progressive nature associated with disabilities of the temporomandibular joint are apparent in 50 per cent or more of persons over 25 years of age. Bowman[5] observed temporomandibular arthrosis in a third of 1,350 adults examined and found no difference in the occurrence of symptoms in individuals with normal bites and deep overbites, whether the molar-bicuspid support was good or bad. Markowitz and Gerry[6] reported the incidence of temporomandibular disturbance to be 28 per cent in an adult group of 700 individuals studied.

METHOD

Each individual included in this survey of 1,200 unselected persons was examined by one of us (J.E.B.) in order to obtain an accurate and consistent record. Only a few were patients undergoing intraoral dental treatment at the time of examination. The main reason for this was to prevent any discrepancy that might occur if patients who had undergone extensive dental treatment were examined.

1. Salman, Irving. Traumatic injuries to the temporomandibular joint. J. Oral Surg. 7:277 (Oct.) 1949.

2. Markowitz, H. A., and Gerry, R. G. Temporomandibular joint disease. Oral Surg., Oral Med. & Oral Path. 3:75 (Jan.) 1950.

3. Schultz, L. W. Report of ten years experience in treating hypermobility of the temporomandibular joints. J. Oral Surg. 5:202 (July) 1947.

4. Brussell, I. J. Temporomandibular joint diseases: differential diagnosis and treatment. J.A.D.A. 39:532 (Nov.) 1949.

5. Bowman, K. Temporomandibular joint arthrosis and its treatment by extirpation of disk. Abstracted by C. W. Waldron in The year book of dentistry. Chicago, The Year Book Publishers, Inc., 1947.

6. Markowitz, H. A., and Gerry, R. G. Temporomandibular joint disease. Oral Surg., Oral Med. & Oral Path. 2:1309 (Oct.) 1949.

Also, a certain percentage of dental patients may be seeking relief for a temporomandibular joint disturbance. As far as possible, known cases of temporomandibular subluxation were not included in this survey. No doubt a larger percentage of occurrence would have been obtained if such cases had been included. One of the original ideas in working up this paper was to establish the incidence of temporomandibular subluxation for any unselected large group of persons, such as an entire community, city or state.

Of the 1,200 persons examined, 300 were dental students enrolled in the University of Pittsburgh; 300 were patients of the Woodville State Hospital, Woodville, Pa.; 50 were patients of the Western Psychiatric Hospital, Pittsburgh; 300 were patients of the Magee Hospital, Pittsburgh; the remaining 250 examined were unselected persons. This survey was conducted from October, 1949, through February, 1950.

Before beginning the survey, a large number of mimeographed charts were prepared. These sheets were divided into several columns with a specific heading at the top of each column. They are as follows:

1. Name
2. Age
3. Sex
4. Race
5. *a.* All teeth present
   b. Edentulous (with or without dentures)
   c. Teeth missing
6. Unilateral or bilateral subluxation
7. Is patient aware of subluxation
8. On which side does patient chew
9. Description of objective and/or subjective symptoms

The name, age, sex and race were recorded when the patient was examined. The temporomandibular joint was palpated with the patient opening and closing the mouth and making lateral movements.

By holding the index finger in close contact with the tissues just lateral to the condylar head during the various mouth movements, the head of the condyle could be felt to move in a forward and downward path as the mouth opened. Repeated palpations were made on several patients to enable us to distinguish correctly between a normal excursion of the condyle and a forward gliding of the head of the condyle anterior to the articular eminence. We found that extensive palpation will enable one to recognize the various normal and abnormal movements of the joint.

If the patient had subluxation, the teeth were examined to see which teeth were present. If the patient was edentulous, the presence or absence of dentures was noted. If subluxation was present, it was noted as being unilateral or bilateral. Unilateral subluxation was entered in the proper column as being on the right or left side. Next, the patient was asked if he had ever noticed any of the common symptoms of subluxation, such as clicking or snapping sounds or pain. If he was aware of the subluxation, the principal subjective symptoms were noted. Otherwise, just the objective symptoms were entered. As a means of determining the cause of unilateral subluxation, the patient was asked which side was commonly used in mastication. Usually this side was opposite to the side of the subluxating joint. Since teeth were usually missing on the same side as the subluxation, the reason for the unilateral subluxation was demonstrated in many cases.

After all examinations were completed, a careful compilation of the data was made and the figures and percentages entered into separate tables. The tables were arranged to present several different insights into the incidence of temporomandibular joint subluxation.

Of the 1,200 individuals examined, 480 or 40 per cent had subluxation (Table 1).

This figure is lower than Brussell's[4] findings and is somewhat higher than the findings of Bowman[5] and Markowitz and Gerry.[6] It should be noted that the occurrence in a group of 300 male dental students in an age group of 20 to 39 years is 34.3 per cent (Table 2). This compares favorably with the other reports found in the literature.

The percentage of subluxation increases as the age increases (Table 3). It is readily seen that the percentage for the entire group of 1,200 individuals examined is almost equal to any of the three age groups between 20 and 50.

In Table 4 the difference between the white male and white female group is not statistically significant. However, the 26.5 per cent incidence for the negro female is significantly lower than the white female. This is not in agreement with the average dentist's opinion on the subject, since it is commonly thought that females have a much higher incidence of occurrence than do males. Probably the average case of subluxation that is called to the dentist's attention is the female, since most women seem to have more pronounced symptoms than men. This is merely our observation. It would have been proper to have included negro males, but they were not commonly encountered in this survey.

Tables 5, 6 and 7 present the incidence according to age for each of the race and sex groups examined. Some of the age groups do not have large enough numbers to be statistically significant, if studied alone. It is significant that percentage of occurrence increases in most of the age groups with the increase in age.

Table 8 shows that approximately two out of every three persons with subluxation are aware that some abnormal sound or movement is present in one or both joints. The 30 per cent presenting objective symptoms only, usually had nothing more than a slight clicking or snapping sound.

Table 9 shows that bilateral subluxa-

Table 1 • Incidence of temporomandibular joint subluxation

	Number	Per cent
Normal temporomandibular joints	720	60
Temporomandibular joint subluxation	480	40
Total	1200	100

Table 2 • Temporomandibular joint subluxation in 300 male dental students

Age groups	Number	Cases	Per cent
20-29	252	83	32.9
30-39	48	20	41.6
Total	300	103	34.3

Table 3 • Temporomandibular joint subluxation in different age groups

Age groups	Number	Cases	Per cent
6-14	18	1	5.5
15-19	60	14	23.3
20-29	598	232	38.8
30-39	245	99	40.4
40-49	109	45	41.3
50-59	99	51	51.5
60-69	59	31	52.5
70-79	12	7	58.3
Total	1200	480	40.0

Table 4 • Temporomandibular joint subluxation in the various race and sex groups examined

Sex and race	Number	Cases	Per cent
Male, white	627	259	41.3
Female, white	343	160	46.6
Female, negro	230	61	26.5
Total	1200	480	40.0

Table 5 • Temporomandibular joint subluxation for the white male group according to age

Age groups*	Number	Cases	Per cent
15-19	15	3	20.0
20-29	364	146	41.2
30-39	95	45	47.3
40-49	44	20	45.5
50-59	56	24	42.1
60-69	35	18	51.5
70-79	7	3	43.0
Total	616	259	41.3

*Age group 6 to 14 is not included.

Table 6 • Temporomandibular joint subluxation for the white female group according to age

Age groups*	Number	Cases	Per cent
15-19	20	6	30.0
20-29	111	49	44.1
30-39	96	40	41.6
40-49	50	24	48.0
50-59	36	26	72.2
60-69	23	12	52.2
70-79	3	3	100.0
Total	339	160	46.6

*Age group 6 to 14 is not included.

Table 7 • Temporomandibular joint subluxation for the colored female group according to age

Age groups*	Number	Cases	Per cent
15-19	25	6	24.0
20-29	123	37	30.0
30-39	54	14	25.9
40-49	15	1	6.7
50-59	7	1	14.3
60-69	1	1	100.0
70-79	2	1	50.0
Total	227	61	26.5

*Age group 6 to 14 is not included.

Table 8 • Subjective and objective symptoms in temporomandibular joint subluxation

Symptoms	Number	Per cent
Subjective	320	70
Objective	160	30
Total	480	100

Table 9 • Temporomandibular joint subluxation involving the right, left and both joints

Joint involved	Number	Per cent
Right	77	16
Left	113	24
Both	290	60
Total	480	100

Table 10 • Temporomandibular joint subluxation in edentulous persons

	Number	Per cent
Edentulous persons with dentures without subluxation	35	24
Edentulous persons with dentures with subluxation	34	23
Edentulous persons without dentures without subluxation	19	13
Edentulous persons without dentures with subluxation	57	40
Total	145	100

tion is much more prevalent than unilateral subluxation. Since 60 per cent of the cases of subluxation are bilateral, nearly two cases out of every three present bilateral symptoms. Unilateral subluxation occurs more often in the left joint than the right.

Table 10 divides the edentulous persons into a group with dentures and a group without dentures. The edentulous persons with dentures and without subluxation show an incidence of occurrence statistically equal to those with dentures and with subluxation. The edentulous persons without dentures and without subluxation are not frequently encountered in comparison to those without dentures and with subluxation. This survey shows that over three times as many edentulous persons without dentures have some form of subluxation as those without subluxation. This ratio is to be expected with the loss of vertical dimension.

SUMMARY

1. This study of the temporomandibular joint has served to determine the incidence of subluxation of the temporomandibular joint.

2. Subluxation has been defined adequately with definite reasons given as to why the term should be broadened to include luxation.

3. The method of examination, the source of material and the procedure used during the survey have been given.

4. Twelve hundred unselected individuals were examined, the findings were recorded and presented in the form of tables.

CONCLUSIONS

As the age increases, so does the incidence of occurrence of temporomandibular joint subluxation.

Contrary to past beliefs, this survey revealed that subluxation occurs just as often in males as females. Negro females have a much lower incidence of subluxation than do white females or white males.

A large percentage of persons with subluxation are aware of the presence of some abnormal condition of the temporomandibular joint.

Subluxation occurs more often as a bilateral condition than as a unilateral disturbance. The left temporomandibular joint is involved more often than the right joint.

About 50 per cent of edentulous persons with dentures have subluxation. Abnormalities in occlusion were considered the principal factors in the development of subluxation. Because of the large number of persons examined in this survey, an accurate record was not kept of all the missing teeth and the type of bite for each individual.

The periodontist looks at the clasp partial denture

John Oppie McCall, D.D.S., New York

Partial dentures are removable appliances which supply missing teeth in a partly edentulous arch. They are employed for one or more of the following four reasons: (1) to improve appearance, (2) to restore masticating area and function, (3) to prevent drifting and tilting of the remaining natural teeth, (4) to relieve the remaining natural teeth of undue occlusal strains imposed on them as a result of extractions. In the latter instance, when a full upper denture is opposed by natural lower anterior teeth, a partial denture will give this relief by providing balance.

The periodontist is interested chiefly in the remaining natural teeth both in the arch in which the restoration is placed and in the opposing arch. He is concerned with the good or bad effect which the appliance is going to have on these natural teeth. Unfortunately a great many partial dentures, especially those retained by clasps, produce a harmful effect on the supporting tissues of the teeth and often on the teeth themselves and constitute a real hazard in the mouth.

Although I am of the opinion that the partial denture retained by the internal or so-called precision attachment is the most nearly ideal appliance, it is my belief that some of the harmful effects of the clasp denture may be mitigated if not entirely done away with by proper planning and execution. Consideration in this article will be given chiefly to the type of appliance perhaps most commonly required—the double saddle denture supplying lower posterior teeth and having no posterior abutments. However, the statements regarding clasps apply to

clasps used on other types of partial dentures.

The principal objection to the clasp type of denture is the clasp itself. The typical clasp of today is the cast clasp, consisting of buccal and lingual clasp arms together with an occlusal rest. The occlusal rest lies on the occlusal surface of a posterior tooth or on the lingual surface of an anterior tooth. In the latter case it may be called a lingual rest.

The purpose of the clasp is to retain the partial denture in the desired position against stresses of mastication or other stresses which tend to dislodge it. The function of the occlusal rest is to keep the denture from settling through resorption of the ridge brought about by the stresses of mastication.

Before the occlusal rest was conceived, wasting of the ridge under partial denture saddles was common and resulted both in the loss of masticating efficiency and in the imposition of undue stress on the remaining natural teeth. The occlusal rest is the salvation of the conventional partial denture but it is not an unmixed blessing, particularly in the form in which it is commonly constructed.

THE CONVENTIONAL OCCLUSAL REST

The most objectionable feature of the conventional occlusal rest is that it is not seated firmly on the surface on which it rests. This fault is especially conspicuous in instances in which the abutment tooth has not previously had caries and does not contain a filling on which the occlusal rest may lie. The dentist is reluctant to cut into sound enamel in order to place a filling, therefore he designs the occlusal rest so that it will lie on the unbroken enamel marginal ridge. In some instances he may prepare a shallow recess in the enamel by grinding. The grinding is done simply to provide space for the occlusal rest between the abutment tooth and its opponent in the other jaw.

In either case the occlusal rest, far from being firmly seated on the tooth surface as it is supposed to be, lies on a slightly sloping surface and has a tendency to slide off under occlusal pressure. It is obvious that this would occur if there were no clasp arms to keep it in place. Some dentists labor under the delusion that the clasp arms actually retain the occlusal rest in its proper position. This means of retention might suffice if the clasp arms were absolutely rigid and incapable of yielding under pressure or pull. But the very nature and function of the clasp arm is such that it should have some slight resiliency so that it can give under various stresses.

When the occlusal rest slides from its proper position even a fraction of a millimeter it produces a wedging effect on the tooth. The wedge is recognized as one of the most powerful mechanical forces that can be invoked. The effect of this force on the periodontal fibers and the alveolar bone can be deduced; that it is real is demonstrated by visible effects in all too many instances. The application of this kind of force constitutes one of the reasons why the partial denture is so often referred to as a regulating appliance, albeit the teeth do not move to a new position but simply get loose.

If the remarks just made about the occlusal rest as applied to posterior teeth have a basis in fact they apply with greater force to the lingual rest which is so often incorporated in clasp design for anterior teeth. In such cases the term "rest" is a misnomer, for the rest is applied to a surface which presents a sharp incline to the direction in which forces will be exerted. If the occlusal rest will slide off the marginal ridge of a posterior tooth, how much more readily will it slide off the lingual surface of an anterior tooth?

OCCLUSAL REST DESIGN

The occlusal rest is a vital necessity in partial denture construction wherever

clasp partial dentures, for reasons of economy, must be made. However, the rest must be so designed and constructed that it will accomplish its purpose without injuring the teeth on which it will lie. This can be done simply although it involves additional preparation. A recess of respectable depth, at least two millimeters, must be provided to receive the rest. This recess must have a flat floor, that is, a plane surface which shall be at a right angle to the direction of the expected stress. The recess should be so planned that the application of normal occlusal stresses would not dislodge the appliance even though no clasp arms were provided. This requires cutting a cavity in the abutment tooth and making an inlay in which the recess may be prepared. This requirement applies to both anterior and posterior teeth. The occlusal rest will then be cast as an integral part of the clasp assembly as in the more commonly used technics.

The final requirement for the occlusal rest is that it shall not have occlusal contact with opposing teeth. Such contact is not only traumatic but is a source of actual, although often subconscious, discomfort. One of the periodontist's routine duties when undertaking treatment for a partial denture wearer, assuming that there is no urgent need for a new appliance, is to grind the spots on the opposing teeth which make contact with occlusal rests. The patient's expression of satisfaction when this is done indicates that the relief was needed. It seems that the yielding of the occlusal rest under occlusal pressure causes the discomfort and that its height causes the trauma.

CLASP ARM DESIGN

The harm attributed to the improperly designed occlusal rest is not the only injury caused by some cast clasps. Mention has been made of the resiliency of the clasp arms. Normally, advantage is taken of this resiliency to provide needed retention by placing the clasp arms slightly beyond (toward the gingivae) the point of greatest diameter of the tooth crown. The clasp arms, then, must spread somewhat in order to go over that point and reach the retention location. If the clasp has been designed accurately and if the denture is so inserted that both sides go to place simultaneously, and if the clasp arms are not too tight, the push of the clasp, on insertion, or the pull, on removal, need cause no undue strain on the abutments. But most periodontists observe that these conditions are seldom met.

What are the harmful effects of poor clasp construction? First and almost invariably, the pressure exerted by the two arms of the clasp will be uneven. Thus, on insertion and removal of the denture and probably while it is in place, the abutment teeth will be pressed lingually or buccally, according to which arm exerts the greater pressure. In addition, the central part of the clasp, which is in contact with the distal surface of the abutment tooth, may produce excessive mesial pressure on that tooth. The latter condition is practically inevitable with the usual clasp if the tooth has a slight mesial tilt.

Second, a careful survey to determine the best location for the clasp arms is seldom made. Thus some arms will be so placed that they exert too much pressure while others may be virtually functionless. It is not uncommon to inspect a seated partial denture and see a buccal or lingual clasp arm standing completely away from the tooth surface with which it is supposed to make frictional contact. The resulting excessive stress which must then be exerted by other clasp arms to keep the denture in position can be recognized readily and the effect on the periodontium appreciated.

Third, the clasp arms sometimes are not planned in relation to the path of insertion. As a result of this failure, excessive stresses may have to be exerted

to insert and remove the denture.

Finally, the clasp, if cast, is usually a bit too small, probably because of contraction in casting. The undersized clasp requires the use of excessive force in inserting and removing the denture with harmful effect on the periodontal tissues involved.

ABNORMAL OCCLUSAL RELATIONS

Another factor must be considered which is not directly related to clasping as such but to denture design and tooth placement. Occlusal aberrations resulting from an original malocclusion or acquired malposition through postextraction drifting, frequently bring about abnormal relations between the natural teeth and the opposing artificial teeth. These abnormal occlusal relations often tend to unseat the partial denture during functional use. Under such circumstances the clasp must be given additional tension to resist the disturbing force. This additional tension places excessive pressure on the abutment teeth. A common cause of the disturbance referred to is excessive overlap of the cusps of the upper teeth over the lower teeth. This overlapping may occur either in the anterior or posterior region. However, other occlusal stresses may produce this unfortunate tendency to denture dislodgment.

The relation of the partial denture teeth to their antagonists should be such that there will be the least possible demand on the clasps for the retention of the denture during function.

SADDLE PRESSURE

Another problem which has to do with partial denture construction, not however related to the matter of clasps, is the effect of the saddle on the gingival tissue around the abutment teeth. The marginal gingiva is particularly sensitive to abnormal pressure. Whereas the edentulous ridge tissue tolerates saddle pressure well and its circulation may be stimulated by such pressure, properly exerted, the marginal gingiva is irritated by saddle pressure. Since the impression taken for the purpose of denture construction records the form of all tissue uniformly, or at least makes no distinction between gingival and ridge tissue, a saddle constructed from the resulting model will exert just as much pressure on the gingiva as on the ridge tissue. The remedy is to provide relief for the marginal gingiva. This can be obtained by judicious scraping of the impression, if it is taken with plaster, or by trimming the completed saddle if the impression is taken with an elastic material.

Frequently the buccal flange of the saddle impinges on the marginal gingiva and the alveolar mucosa causing a linear indentation in those tissues which often is noticeably uncomfortable. The remedy for this condition is to avoid overextending the saddle when it is outlined on the model or to trim the border of the flange after the denture has been worn for a time.

The clasp partial denture will never be the best prosthesis for the partly edentulous human mouth. The hazards of the clasp are not confined to the points herein mentioned. The clasp is a notorious cariogenic agent. Furthermore, the buccal and lingual clasp arms may cause irritation to the lips and tongue. Buccal clasp arms are disagreeably conspicuous when placed near the front of the mouth. However, these hazards are secondary to the dangers mentioned previously. Nevertheless it is possible, by taking the precautions described, to construct clasp partial dentures which can be expected to give good functional service without causing fundamental periodontal damage.

It is true that the preparation of satisfactory occlusal rests and flat recesses to receive them which involves the construction of inlays, will add considerably to the denture cost. But both the dentist and the patient must realize that the

first function of dentistry is to maintain the teeth and their supporting tissues in a healthy condition. The continued dental health of the patient can be served most economically by constructing partial dentures which furnish optimum service without injuring the periodontal tissues.

133 East Fifty-eighth Street

Oral clinical color photography simplified

J. H. Sault, D.D.S., Philadelphia

Clinical photography is recognized as a valuable and frequently indispensable factor in dental and medical practice. It constitutes an important record in oral diagnosis, presents a sequential pictorial graph of the progression or regression of oral diseases and anomalies and is a requisite item in complete case reports. It is unexcelled as teaching media in the educational field.

So much has been written in the literature with regard to clinical photography that it seems particularly appropriate and timely to present a standardized yet simple technic which can be readily adapted to office practice, large clinical organizations and educational institutions.

The technic described in this article sets forth a simplified procedure which will permit individuals having little or no previous photographic experience to produce excellent standardized close-up clinical photographs in 35 mm. color transparencies of the teeth, the interior of the oral cavity, the face, extraoral lesions and all other dental subjects with a minimum expenditure of time.

HISTORY AND DEVELOPMENT

The use of a 35 mm. camera with a sliding focusing attachment having a ground glass direct view finder and various sized extension tubes is a long established photographic procedure for close-up photography.

The accessory photographic apparatus designed by Schlack[1,2] was developed by the dental section of the Naval Medical Research Institute of Bethesda, Md. (Fig. 1, left). It is actually a modification of an apparatus designed by the department of oral medicine of the dental school of the University of Pennsylvania. It consists of a metal base elevated on rubber supports with an adjustable rod and arm assembly supporting the sliding focusing attachment and camera, cylindrical reflectors housing two 750 watt projection lamps which are attached to diagonal slides in the base with thumb nuts on the under side to permit adjustability in positioning the lamps and a microswitch to control the lamps. Plans for this apparatus are included in Schlack's report.[1] A similar

The opinions or assertions contained in this article are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

Captain, DC, USN, U.S. Naval Hospital.

1. Schlack, C. A. A modification of an original oral photographic apparatus originally constructed by the dental school, University of Pennsylvania. Naval Medical Research Institute Project X 767, Report #1, March 18, 1947.

2. Schlack, C. A. A modification of an oral photographic apparatus originally constructed by the dental school, University of Pennsylvania. U.S. Nav. M. Bul. 48:312 (March-April) 1948.

apparatus may be constructed of metal, plastic or wood. This apparatus was designed to be used on the bracket table of a standard dental operating unit for oral clinical photography and on a photographic enlarging stand or table for photographs of models or dentures.

Several of these modified units are in use in naval dental activities throughout the world, including U. S. Naval Dental Clinics in Pearl Harbor and Guam, the U. S. Naval Medical Research Unit, Cairo, Egypt, the U. S. Naval Dental School, National Naval Medical Center and the U. S. Naval Medical Research Institute at Bethesda, Md.

ADDITIONAL FEATURES

In using this apparatus on the standard dental bracket table it was found that the addition of the following features would greatly increase the efficiency of the equipment: (1) more adjustability than the bracket table and its arm provides; (2) a means of locking the equipment in position when the desired composition and focus are obtained, and (3) the establishment of specific exposure data tables for the various subjects to be photographed.

With this objective in mind a portrait type of tripod head with wing nut locking devices was adapted to the apparatus and to the metal base of the bracket table. Lock bolts were installed in the bracket table base and in the elbow of the bracket table arm (Fig. 1, right). Exposure data tables were established for use with the equipment.

ESSENTIAL EQUIPMENT

The essential equipment for this technic (Fig. 1 and 2) consists of:

1. A 35 mm. camera with readily detachable lens assembly.
2. A sliding focusing attachment.
3. Extension tubes of 12, 22 and 30 mm.
4. An apparatus to support the copying device and camera which provides adequate lighting and a switch to control it.
5. A tilt-top portrait type of tripod head with a turntable base.
6. An extra terminal section of the bracket table arm and bracket table base.
7. An adapter fitting the base of the tripod head to the extra bracket table base.
8. A cable type shutter release.
9. Light meter (American Standards Association standard is desirable).
10. Lip retractors, plastic or metal on wire.
11. A 2½ by 4 inch steel mirror, a no. 6 dental mirror, a 2 inch round dental mirror and a 3½ inch round hand mirror.
12. A X5 magnifier for copying attachment.
13. An intermediate focusing device (optional).
14. An enlarger stand and adapter arm to support the apparatus with the camera.

DESCRIPTION OF EQUIPMENT

It is not essential to use the particular camera and equipment illustrated in this article. Any 35 mm. camera with a 50 mm. lens, for which a ground glass focusing attachment is obtainable, will serve the purpose. However, the degree of magnification possible with some cameras may be limited by the size of the shutter opening.

The principal advantage of a focusing attachment in close-up photography lies in the fact that the optimum focus may be readily obtained by a direct view, thereby permitting extreme accuracy of focus, eliminating the consideration of parallax and the necessity for using a set distance focusing device (Fig. 3).[2] In the hands of an experienced photographer excellent results may be obtained with the latter device. However, in using this device there are certain areas of the interior of the mouth which are difficult to

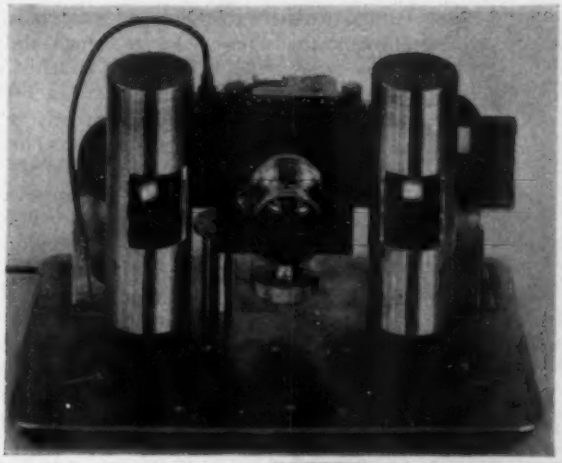
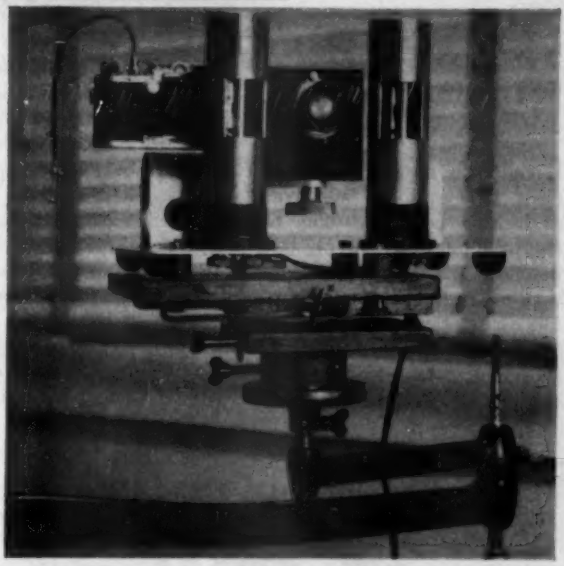


Fig. 1 • Left, modified apparatus as devised by the dental section of the Medical Research Institute.[1, 2] The lens, which has been detached from the camera, is attached to an extension tube which in turn is attached to the front of the sliding focusing attachment. The camera is attached to the slide of the focusing attachment and positioned correctly for making an exposure. The two 750 watt projector lamps are housed in cylindrical reflectors, the bases of which are placed on diagonal slides for adjustability



Right • The original apparatus is attached to the tilt-top tripod head, which seats on a turntable type of adapter made to fit an extra bracket table base. The extra base and extra terminal section of the bracket table arm have wing nut locking bolts to permit immobilization when the desired focus is obtained

photograph with any degree of consistency and accuracy.

The extension tubes are available in many standard sizes and are used to obtain the desired field size and degree of reduction or magnification of the subject. See columns E and G of Tables 1, 2 and 3.

The 750 watt projection lamps do not produce the exact correct color temperature for type A Kodachrome photography. However, this has not proved objectionable in the resulting color transparencies. The slightly reddish tinge that is produced will be noticed only under critical observation.

The tilt-top portrait tripod head (Fig.

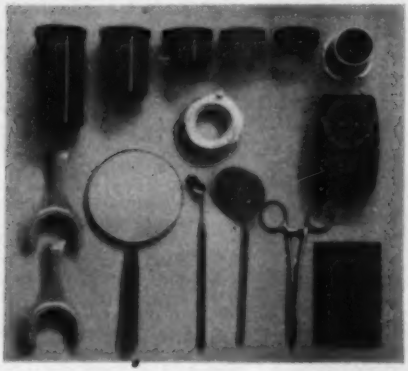


Fig. 2 • Accessory equipment used in this technic. Top row: 90 mm., 60 mm., 30 mm., 22 mm. and 12 mm. extension tubes and a X5 magnifier. Bottom row: plastic retractors, 3½ inch round mirror, standard no. 6 dental mirror, 2 inch dental mirror, hemostat and a 2½ by 4 inch stainless steel mirror. Center, an intermediate focusing device (optional) and an A.S.A. light meter

1, right) is adjustable in three dimensions. It is equipped with wing nut type of locking bolts and may be obtained from photographic supply houses or can be made in a machine shop. This tripod head has been adapted to an extra bracket table base of a dental operating unit with a metal adapter constructed in a machine shop. This adapter was constructed to fit the turntable of the tripod head and to attach to the extra bracket table base through the screw holes to which the bracket table top is normally attached. The mandrel supporting the bracket table base has been recessed to receive a lock bolt inserted through the base. This bolt must be locked in the mandrel the entire time the assembly is in use. An additional lock bolt has been inserted at the elbow of the extra bracket table arm.

The entire assembly of equipment as illustrated in Figure 1, right, allows complete freedom of movement and adjustability. It also permits rapid positioning of the camera and the establishment of an accurate focus almost instantaneously. The bracket table arm permits freedom of forward, backward and lateral movements while the turntable of the tripod head permits maximum adjustability in the lateral horizontal movements. The equipment may be positioned either in the normal horizontal position or in a vertical position by raising the top member of the tripod head on its hinge until it is vertical. In either the horizontal or vertical position it may be tilted up or down through a 10 degree angle through the central axis of the middle member of the tripod head.

The wing nut type of locking bolts throughout provides an efficient and rapid means of complete immobilization when the desired focus is established.

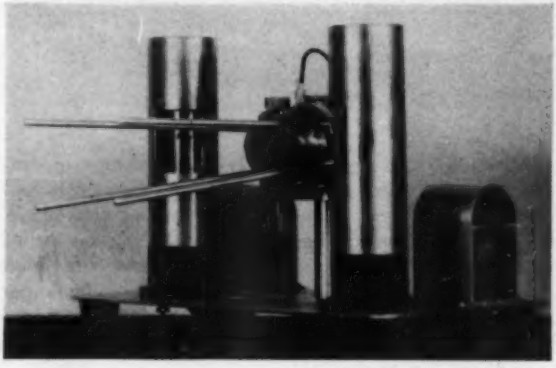


Fig. 3 • A fixed distance focusing device attached to a 35 mm. camera on the basic apparatus. The focusing rods attach to a ring which slips over the base of the lens. When the positioning rods are brought in contact with the subject and properly outline the area to be photographed, the focusing device is removed and the exposure made

ACCESSORY EQUIPMENT

A cable type shutter release is required to prevent movement of the assembly while making exposures.

An American Standards Association standard light meter is desirable to establish the exposure data tables. However, any type of light meter will serve the purpose.

Lip retractors are essential for most exposures in the interior of the mouth. Plastic lip retractors made of pink denture base material are satisfactory; however, metal and even wire retractors may be used and in some cases are more desirable.

Many areas within the oral cavity can only be photographed with mirrors. A steel mirror 2½ by 4 inches is generally used. In some instances a standard no. 6 dental mirror, a large dental mirror with a 2 inch diameter, or a round hand mirror with a 3½ inch diameter may be of value for certain types of exposures. A times five (X5) or a times eight (X8) magnifier for attachment to the viewer of the copying attachment facilitates extremely critical focusing.

In a few instances it might be desirable to use an intermediate focusing device with the lens and extension tubes on the copying attachment. This item is entirely optional and is not described in this article.

EXPOSURE DATA TABLES

Table 1 for direct exposures and Table 2 for mirror exposures have been established to provide pertinent information concerning most types of clinical photographs that will be made of the oral cavity with the equipment described in this article.

Table 3 provides data for exposures of roentgenograms and 2 by 2 color transparencies. The services of an experienced photographer may be employed to establish similar tables for different combinations of cameras and extension tubes. Once established they serve as a ready reference and allow the inexperienced operator to select the correct extension equipment and shutter speed.

In these tables column A enumerates the subject to be photographed. Column B lists the auxiliary reproduction equipment such as the various combinations of the copying attachment and extension tubes to be used for the individual exposures with instructions governing their use. Column C provides the corrected shutter speed or exposure time to be used in each instance. Column D lists the aperture opening which, in this technic, has been standardized at f:16 for most types of exposures. This is the smallest aperture obtainable in the camera used. The most important of the several reasons for using an f:16 stop universally is that the smallest aperture provides the greatest depth of focus (Fig. 4). In addition, it simplifies the technic by eliminating the variable introduced when different aperture settings are used. This also reduces the personnel error factor. Column E illustrates the approximate size of the field that will be covered with the various extensions. The operator, by referring to this column, may select in advance the extension attachments that will best serve this purpose. Column F enumerates the approximate distances the lens will be from the subject. Column G lists the ratio of the reduction in the size of the object when reproduced in the film. Column H lists the exposure factors introduced by the use of the extension equipment.

REDUCTION AND MAGNIFICATION

The maximum extension illustrated in these tables is that using the focusing attachment with a 12 mm. and a 30 mm. extension tube. This combination reproduces an image on the 35 mm. film approximately the same size as the object, the ratio being 1:1. In the author's experience, the need for a greater magnifi-

Table 1 • Exposure data for direct exposures

A	B	C	D	E	F	G	H	I
Subject	Extension used	Correct shutter speed in seconds	Aperture setting	Approximate field covered in inches	Distance from object to lens in inches	Ratio of reduction	Exposure factors	Remarks
Face, A-P	S.F.A. lens barrel retracted 9 mm.	1	f:16	14 x 21	31⅛	1:5:1	1.15X	
Face, lateral	S.F.A. lens barrel retracted 9 mm.	½	f:16	14 x 21	31⅛	1:5:1	1.15X	Supplement lateral views with one no. 2 photoflood, 30 inches in front of patient's face
Face, A-P	S.F.A. lens barrel retracted 6 mm.	½	f:16	8½ x 12¾	19⅜	9:1	1.23X	
Face, lateral	S.F.A. lens barrel retracted 6 mm.	¼	f:16	8½ x 12¾	19⅜	9:1	1.23X	
Teeth or lips lower ⅓ of face	S.F.A. only	1/15	f:16	4¼ x 6⅜	10¾	4.5:1	1.5X	
Tongue, extruded lower ⅓ of face	S.F.A. only	1/10	f:16	4¼ x 6⅜	10¾	4.5:1	1.5X	Unless otherwise specified S.F.A. indicates that the lens mount is set at infinity with the lens barrel locked in the mount
Lips, closed	S.F.A.+ 12 mm. tube	1/15	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Teeth, anteriors A-P or lateral	S.F.A.+ 12 mm. tube	1/20	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Tongue, extruded A-P or lateral	S.F.A.+ 12 mm. tube	1/15	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
⅓ of face A-P or lateral	S.F.A.+ 12 mm. tube	1/15	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Teeth, occlusal view	S.F.A.+ 12 mm. tube	1/15	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	Use mirror for these exposures. Direct views not recommended
Alveolar ridges	S.F.A.+ 12 mm. tube	1/15	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Palate, vault	S.F.A.+ 12 mm. tube	1/10	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Tongue, retracted	S.F.A.+ 12 mm. tube	1/10	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Lips, ¾ of lips	S.F.A.+ 22 mm. tube	1/15	f:16	1⅜ x 2⅛	4⅞	1.5:1	2.75X	
Teeth, A-P or lateral	S.F.A.+ 22 mm. tube	1/15	f:16	1⅜ x 2⅛	4⅞	1.5:1	2.75X	
Lips, ½ of lips	S.F.A.+ 30 mm. tube	1/15	f:16	1⅛ x 1¾	4 5/16	1.25:1	3.33X	
Teeth, 6 anteriors A-P or lateral	S.F.A.+ 30 mm. tmbe	1/15	f:16	1⅛ x 1¾	4 5/16	1.25:1	3.33X	
Eye	S.F.A.+ 30 mm. tube	1/15	f:16	1⅛ x 1¾	4 5/16	1.25:1	3.33X	
Lips	S.F.A.+ 12 mm.+ 30 mm. tubes	1/15	f:16	1 x 1⅜	3 13/16	1:1	4.25X	
Teeth, 4 anteriors A-P or lateral	S.F.A.+ 12 mm.+ 30 mm. tubes	1/15	f:16	1 x 1⅜	3 13/16	1:1	4.25X	

cation is seldom indicated in oral photography. However, with the apparatus described and various combinations of extension equipment it is possible to obtain reductions of 15:1 and magnifications of 19:1. To produce the latter it requires the copying attachment with ten 90 mm., one 30 mm. and one 12 mm. extension tubes, totaling 942 mm. and an exposure factor of 400X.

EXPOSURE FACTOR

As the lens of a camera is extended farther from the film plane by the insertion of copying attachments and extension tubes between the camera and the lens, the amount of light reaching the film with a specific shutter speed and aperture opening is reduced. To allow the correct amount of light required by the various extensions to reach the film, an exposure factor is introduced. The indicated shutter speed must be multiplied by the exposure factor which establishes a slower corrected shutter speed with the aperture setting remaining at f:16. These exposure factors may be obtained from columns H of Tables 1, 2 and 3, or columns Y of Table 4, or from books on photog-

Table 2 • Exposure data for mirror exposures (focus on image in mirror)

A	B	C	D	E	F	G	H	I
Subject	Extension used	Correct shutter speed in seconds	Aperture setting	Approximate field covered in inches	Distance from object to lens in inches	Ratio of reduction	Exposure factors	Remarks
Teeth complete arch	S.F.A.+ 12 mm.	1/20	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	2¼ x 4 in. steel mirror
Edentulous arch	S.F.A.+ 12 mm.	1/15	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Tongue dorsum	S.F.A.+ 12 mm.	1/15	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Palate vault	S.F.A.+ 12 mm.	1/10	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Teeth 12 anteriors	S.F.A.+ 22 mm.	1/20	f:16	1⅜ x 2⅛	4⅞	1.5:1	2.75X	3½ in. round mirror
Teeth 4 posteriors	S.F.A.+ 22 mm.	1/20	f:16	1⅜ x 2⅛	4⅞	1.5:1	2.75X	
Teeth 8 anteriors	S.F.A.+ 30 mm.	1/15	f:16	1⅛ x 1⅝	4¼	1.25:1	3.33X	2 in. round mirror
Teeth 3 posteriors	S.F.A.+ 30 mm.	1/15	f:16	1⅛ x 1⅝	4¼	1.25:1	3.33X	
Teeth 6 anteriors	S.F.A.+ 12 mm.+ 30 mm.	1/15	f:16	1⁵⁄₁₆ x 1⁷⁄₁₆	3⁹⁄₁₆	1:1	4.25X	2 in. round mirror
Teeth 3 posteriors	S.F.A.+ 12 mm.+ 30 mm.	1/15	f:16	1⁵⁄₁₆ x 1⁷⁄₁₆	3⁹⁄₁₆	1:1	4.25X	

Table 3 • Exposure data for photographs of roentgenograms and kodachrome slides

A	B	C	D	E	F	G	H	I
Subject	Extension used	Correct shutter speed in seconds	Aperture setting	Approximate field covered in inches	Distance from object to lens in inches	Ratio of reduction	Exposure factors	Remarks
Dental intraoral 1⅛ x 1¼ in.	S.F.A.—30 mm.	1	f:13	1⅛ x 1⅛	4¼	1.25:1	3.33X	
Dental occlusal 2½ x 3 in.	S.F.A.—12 mm.	½	f:16	2⅛ x 3⅛	6¼	2.25:1	2.15X	
Full mouth 14 exposures	S.F.A. lens barrel retracted 7 mm.	¼	f:16	14 x 21	31⅛	13.1	1.1X	
5 x 7 in. mandible	S.F.A. lens barrel retracted 1 mm.	½	f:16	4¼ x 6⅜	10¾	4.7:1	1.45X	Vary f: stop with light and dark films
8 x 10 in. maxillary or mandible	S.F.A. lens barrel retracted 8 mm.	¼	f:16	14 x 21	31⅛	14:1	1.1X	
8 x 10 in. skull	S.F.A. lens barrel retracted 8 mm.	1/10	f:16	14 x 21	31⅛	14:1	1.1X	
2 x 2 in. kodachrome slide	S.F.A.—12 mm.—30 mm.	1	f:10	1 x 1⅜	3 13/16	1:1	4.25X	

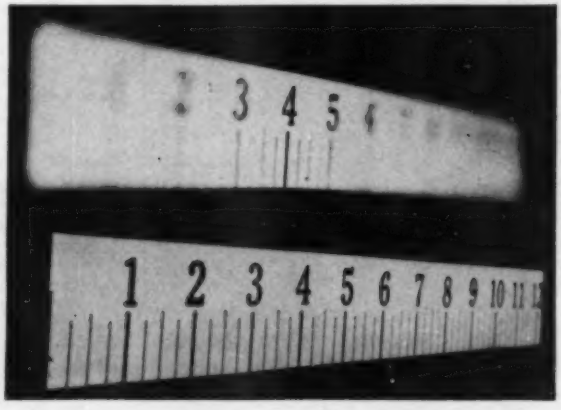


Fig. 4 • These two photographs were made under identical conditions with the exception that the photograph at the top was made with an f:2 aperture and 1/500th of a second. The one at the bottom was made with an f:16 aperture and a 1/15th of a second. It will be noted in the latter that all the numbers on the ruler are readable while in the upper photograph only number 4 can be clearly read

Table 4 • Exposure factor correction

S.F.A. with lens barrel retracted 9 mm.			S.F.A. with lens barrel retracted 6 mm.			S.F.A. with lens barrel extended, locked at infinity			S.F.A. with 12 mm. tube			S.F.A. with 22 mm. tube			S.F.A. with 30 mm. tube			S.F.A. with 12 mm. and 30 mm. tubes		
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
Shutter speed indicated at f.16	Exposure factor	Corrected shutter speed	Shutter speed indicated at f.16	Exposure factor	Corrected shutter speed	Shutter speed indicated at f.16	Exposure factor	Corrected shutter speed	Shutter speed indicated at f.16	Exposure factor	Corrected shutter speed	Shutter speed indicated at f.16	Exposure factor	Corrected shutter speed	Shutter speed indicated at f.16	Exposure factor	Corrected shutter speed	Shutter speed indicated at f.16	Exposure factor	Corrected shutter speed
5.2	1.15X	6	4.9	1.23X	6	4	1.5X	6	2.8	2.15X	6	2.18	2.75X	6	1.8	2.33X	6	1.4	4.25X	6
3.5	1.15X	4	3.3	1.23X	4	2.7	1.5X	4	1.9	2.15X	4	1.5	2.75X	4	1.2	2.33X	4	.94	4.25X	4
1.7	1.15X	2	1.6	1.23X	2	1.3	1.5X	2	.9	2.15X	2	.7	2.75X	2	.6	2.33X	2	.47	4.25X	2
1.3	1.15X	1½	1.2	1.23X	1½	1	1.5X	1½	.7	2.15X	1½	.5	2.75X	1½	.45	2.33X	1½	.35	4.25X	1½
.9	1.15X	1	.8	1.23X	1	⅔	1.5X	1	½	2.15X	1	.4	2.75X	1	.3	2.33X	1	.23	4.25X	1
2/5	1.15X	½	.4	1.23X	½	⅓	1.5X	½	¼	2.15X	½	.2	2.75X	½	.15	2.33X	½	1/9	4.25X	½
1/5	1.15X	¼	.2	1.23X	¼	1/6	1.5X	¼	1/6	2.15X	¼	1/11	2.75X	¼	1/13	2.33X	¼	1/17	4.25X	¼
1/6	1.15X	1/5	1/6	1.23X	1/5	1/8	1.5X	1/5	1/10	2.15X	1/5	1/14	2.75X	1/5	1/17	2.33X	1/5	1/21	4.25X	1/5
1/9	1.15X	1/8	1/10	1.23X	1/8	1/12	1.5X	1/8	1/17	2.15X	1/8	1/22	2.75X	1/8	1/27	2.33X	1/8	1/34	4.25X	1/8
1/12	1.15X	1/10	1/12	1.23X	1/10	1/15	1.5X	1/10	1/22	2.15X	1/10	1/28	2.75X	1/10	1/33	2.33X	1/10	1/43	4.25X	1/10
1/17	1.15X	1/15	1/18	1.23X	1/15	1/23	1.5X	1/15	1/32	2.15X	1/15	1/41	2.75X	1/15	1/50	2.33X	1/15	1/64	4.25X	1/15
1/23	1.15X	1/20	1/25	1.23X	1/20	1/30	1.5X	1/20	1/43	2.15X	1/20	1/55	2.75X	1/20	1/67	2.33X	1/20	1/85	4.25X	1/20
1/29	1.15X	1/25	1/31	1.23X	1/25	1/36	1.5X	1/25	1/54	2.15X	1/25	1/69	2.75X	1/25	1/83	2.33X	1/25	1/106	4.25X	1/25
1/35	1.15X	1/30	1/37	1.23X	1/30	1/45	1.5X	1/30	1/65	2.15X	1/30	1/83	2.75X	1/30	1/100	2.33X	1/30	1/128	4.25X	1/30
1/46	1.15X	1/40	1/49	1.23X	1/40	1/60	1.5X	1/40	1/86	2.15X	1/40	1/110	2.75X	1/40	1/133	2.33X	1/40	1/170	4.25X	1 40
1/58	1.15X	1/50	1/62	1.23X	1/50	1/75	1.5X	1/50	1/108	2.15X	1/50	1/138	2.75X	1/50	1/167	2.33X	1/50	1/213	4.25X	1/50
1/69	1.15X	1/60	1/74	1.23X	1/60	1/90	1.5X	1/60	1/129	2.15X	1/60	1/165	2.75X	1/60	1/200	2.33X	1/60	1/255	4.25X	1/60
1/86	1.15X	1/75	1/92	1.23X	1/75	1/113	1.5X	1/75	1/161	2.15X	1/75	1/206	2.75X	1/75	1/250	2.33X	1/75	1/319	4.25X	1/75
1/115	1.15X	1/100	1/123	1.23X	1/100	1/150	1.5X	1/100	1/215	2.15X	1/100	1/275	2.75X	1/100	1/333	2.33X	1/100	1/425	4.25X	1/100

raphy. They also may be determined by use of this simple formula described in the *Leica Manual*:[3]

$$\text{Exposure factor} = \frac{\left\{\begin{array}{l}\text{Distance from lens}\\ \text{to film plane}\end{array}\right\}2}{\left\{\begin{array}{l}\text{Focal length of}\\ \text{lens}\end{array}\right\}2}$$

Example: With a 12 and 30 mm. tube attached to the copying attachment and the lens barrel locked in its mount with the lens set at infinity, the distance from the lens to the film plane is 103 mm. The focal length of the lens is 50 mm., the focusing attachment adds 11 mm., and the tubes add 42 mm., totaling 103 mm. Therefore, exposure factor

$$= \frac{(50 \text{ mm. lens} + 11 \text{ mm.} + 12 \text{ mm.} + 30 \text{ mm.})2}{50/2}$$

$$= \frac{(103)2}{(50)2} = \frac{10609}{2500} = 4.02X$$

$$= 4X$$

If the indicated shutter speed for an f:16 aperture setting is one-fifteenth of a second, and the exposure factor is 1.5 X the corrected shutter speed = 1/15 × 1.5.

$$\text{Corrected shutter speed} = 1/15 \times \frac{15}{10}$$

$$\text{Corrected shutter speed} = 1/10 \text{ second}$$

Column I includes recommendations and explanatory remarks.

It will be noted in columns B of Tables 1 and 2 that most of the shutter speed settings range between one-tenth and one-twentieth of a second with f:16 aperture setting. There are several factors involved. Exposures made with the same f:stop, extension tubes and distance will have a variance in shutter speed setting for different subjects. These variances are caused by differences in the amount of light reaching the subject and the actual reflecting properties of the subject. A good comparison is a direct exposure of the anterior teeth with one of the vault of the palate.

The shutter speed settings in many instances are similar despite the fact that different length extension tubes are used. When longer extension tubes are used the distance from the lens to the subject is necessarily reduced. Since the lights are attached to the apparatus the distance from the lights to the subject also is reduced. This increases the amount of light reaching the subject and produces a much higher light meter reading with a corresponding faster indicated shutter speed setting. This faster indicated shutter speed multiplied by the increased exposure factor required for the longer extension tubes results in rather uniform shutter speed settings for practically all the extensions used.

It will be noted that one-fifteenth of a second and an f:16 aperture setting is used for exposures of the teeth when both the sliding focusing attachment without extension tubes is used (exposure factor 1.5X) and when the sliding focusing attachment with a 12 mm. and 30 mm. tube are used together (exposure factor 4.25X).

EXPOSURE FACTOR CORRECTION TABLES

Table 4 has been established to provide a ready reference for the shutter speed settings corrected for the exposure factors introduced by the use of any combinations of extension equipment described in this article. The first column on the left, X, lists the shutter speed settings indicated for an f:16 aperture setting as determined by normal light meter readings with the meter set for the speed of the film being used.

Column Y is the exposure factor indicated for the extension used. Column Z consists of the corrected shutter speed settings, enumerated in the various standard settings which will serve for practically all 35 mm. cameras.

3. Morgan, W. D., and Lester, H. M. Copying and close-up photography. In Leica manual, ed. 10, New York, Morgan & Lester, 1945, p. 223.

INSTRUCTIONS FOR THE USE OF THE TABLES

When an object not listed in Table 1, 2 or 3 is to be photographed, the photographic apparatus with the extension desired is set in position and focused. An approximate focus is obtained on the subject which is then illuminated with the lights of the apparatus and a light meter reading is taken. The meter is held as close as possible to the subject without interfering with the source of illumination. The indicated shutter speed for an f:16 aperture setting is determined from this reading. The operator then selects the major column of Table 4 for the extension being used with its corresponding exposure factor and readily determines the corrected shutter speed which is in column Z, opposite the indicated shutter speed in column X.

TECHINIC FOR ORAL PHOTOGRAPHY

The entire procedure of making an exposure (Fig. 5) follows:

1. Seat the patient in the dental chair with the back and headrest vertical.

2. Focus the operating light of the dental unit on the subject to provide suf-

Fig. 5 • Actual procedure of focusing for a mirror exposure of the palate and occlusal surfaces of all the teeth of the maxillary arch. Note the photographer establishing the focus through the ground glass viewer, cheek retractors in position, the stainless steel mirror held with a hemostat by an assistant and the photographer's left thumb on the microswitch button

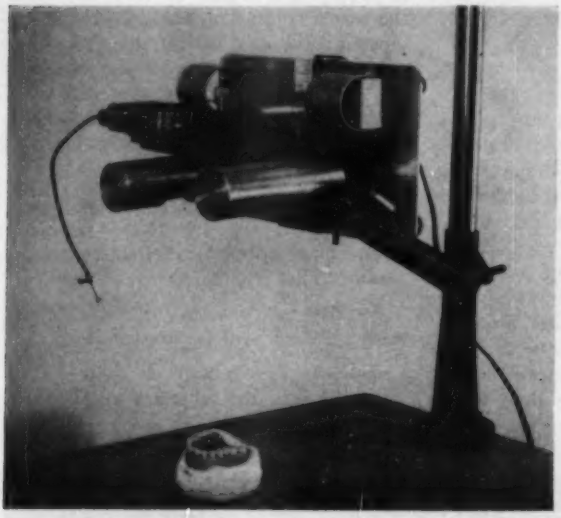


Fig. 6 • The basic apparatus can be removed from the tripod head and attached to an adapter arm on an enlarging stand with two thumb nuts and a clamp. This arrangement is convenient for use in photography of various laboratory models, procedures and other inanimate objects[1, 2]

ficient light to establish the correct focus.

3. Referring to the exposure data tables select the extension equipment required for the particular size of the field or degree of magnification or reduction desired, and insert it between the lens assembly and the sliding focusing attachment.

4. Wind the film to the correct position, which in the Leica camera sets the shutter release. By setting the shutter release just prior to making the exposure the life of the shutter release spring is prolonged indefinitely.

5. Open the lens aperture to f:2 to permit maximum light during the focusing procedure.

6. Set the shutter speed indicator for the correct shutter speed setting indicated by the exposure data table for the particular extension tube to be used.

7. Loosen the wing nut lock bolts on the tripod head and the bracket table arms.

8. Position the lip retractors and mirrors if they are to be used.

9. Slide the ground glass focusing screen into position and establish the best composition of the subject and the correct focus by adjusting the entire assembly.

10. Immobilize the equipment by tightening all wing nuts.

11. Close the aperture opening to f:16.

12. Slide the camera into position. This automatically slides the ground glass focusing screen to the side.

13. Review the check-off list to insure against error.

14. Illuminate the projector lights with the microswitch.

15. Make the exposure by pressing the trigger of the cable release.

The lens is kept locked at infinity for all exposures discussed in this paper and the lens barrel is extended to its maximum and locked in its mount for all exposures of the oral cavity and surrounding tissues. The only deviations from the latter rule are described later under portrait types of photographs.

COMPOSITION

In all clinical photography an attempt should be made to completely fill the frame of the ground glass focusing screen with the subject by selecting the proper extension apparatus.

The subject should be so positioned in the ground glass focusing screen that it will become the center of attraction to the audience. Extraneous items such as lip retractors or fingers should not detract from the primary subject.

CHECK-OFF LIST

A check-off list for the steps required in the actual photographic procedures should be established and attached to the base of the apparatus. This is valuable in preventing errors in operating the equipment.

RECORD OF PHOTOGRAPHS

A complete record of each exposure made should be kept to allow for correction of errors and verification of the tables. To accomplish this, two rubber stamps can be made that may be universally used for most types of photography. They should have columns to permit listing the number of the exposure, the subject, date, time of day, lighting, meter reading, f:stop, exposure setting, distance, filters and extensions used.

MOBILITY AND VERSATILITY

A desirable feature of this photographic assembly is that it may be transferred with a minimum expenditure of time and effort to any other standard dental unit, or to the original tripod, of which the tilt-top tripod head is a part or to an enlarging stand (Fig. 6). If the operator desires, the basic apparatus illustrated in Figure 1 may be used independently.

With any of the foregoing arrangements the technic remains essentially the same except that light meter readings should be taken for the types of exposures not enumerated in Tables 1, 2 and 3. The corrected shutter speed settings should be obtained from Table 4. In a few instances supplemental photoflood lighting may be desirable.

TRANSFER TO OTHER DENTAL UNITS

The entire assembly, including the terminal section of the bracket table arm, may be transferred to any similar dental unit by sliding it off at the elbow joint of the bracket table arm. The gas burner shield and small slip ring on top of the elbow joint are easily removed prior to removal of the assembly. To facilitate this an extra terminal section and bracket table base of the standard bracket table arm were obtained. A stand can be made with a mandrel the same size as the one in the elbow of the bracket table to store the entire assembly when it is not in use.

TECHNIC FOR PORTRAIT TYPES OF PHOTOGRAPHS

To obtain full face and head photographs, in either anterior, posterior or lateral views, the sliding focusing attachment is the only extension used. To produce a field size of approximately 8½ by 12¾ inches the lens is unlocked in its mount, retracted 6 mm. and positioned about 20 inches from the subject. To produce a field size approximately 14 by 21 inches the lens is retracted 9 mm. and positioned about 31 inches from the subject (see Table 1). Figure 7 illustrates a portrait type of photograph.

PHOTOGRAPHS OF ROENTGENOGRAMS AND COLOR TRANSPARENCIES

Thirty-five millimeter color transparencies of dental roentgenograms and copies of other color transparencies can easily be made using the assembled apparatus on the dental unit with the addition of a

Fig. 7 • To obtain full face and head portrait type of photographs, in either anterior, posterior or lateral views, which completely fill the frame of the ground glass viewer, the sliding focus attachment is the only extension used and the lens is unlocked in its mount, retracted 6 mm. and positioned about 20 inches from the subject. This provides a field size of approximately 8½ by 12¾ inches. To obtain a 14 by 21 inch field size the lens is retracted 9 mm. and positioned about 31 inches from the subject (see Table 1).

simple homemade combination film holder and masking device placed over the front of a standard roentgenographic view box in which a no. 2 photoflood lamp has been installed or a no. 2 photoflood lamp has been placed in a box behind the masking device. A black cardboard or metal sheet, one-eighth inch in thickness, and large enough to cover the face of a roentgenographic view box, serves as the holder and masking device (Fig. 8). Windows are cut in it slightly smaller than the various sizes of roentgenograms or color transparencies that are to be photographed. These roentgenograms are held in position with Scotch tape. "Blackout" pieces are cut in various shapes and sizes of cardboard or metal and placed over the particular windows not being used at the time.

The view box with the combination film holder and masking device with the blackout pieces in position are placed in the dental chair, the lights of the view box are illuminated and a light meter reading is taken close to the film to be photographed. Correction for the exposure factor is obtained from Table 4 and the exposure is made by following the standard procedure outlined for oral photographs.

REPRODUCTION OF COLOR TRANSPARENCIES

Copying color transparencies is time consuming and color values are often lost or changed in the process. Whenever possible, it is best to make as many identical exposures as will be required without changing the settings or moving the equipment. At the conclusion of a series of

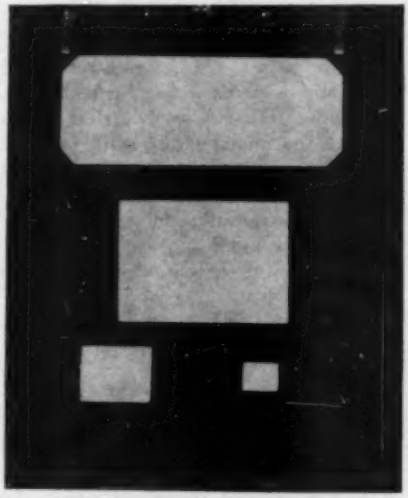


Fig. 8 • Masking device placed on a roentgenographic view box illuminated with a no. 2 photoflood lamp, for various size roentgenograms and 2 by 2 inch color transparencies. "Blackout" pieces of various shapes are placed over the apertures not being used during each exposure

Fig. 9 • Immediate restoration dentures for 80-year-old patient illustrating staining and irregularities of teeth. (S.F.A. with 12 mm. tube, 1/20 at f:16)

identical exposures the focus can easily be verified by sliding the ground glass viewer back into position.

BLACK AND WHITE FROM COLOR TRANSPARENCIES

Black and white 35 mm. photographs can be satisfactorily made from color transparencies in the same manner as described for the reproduction of color transparencies and roentgenograms. These in turn may later be enlarged to any size.

The photographs illustrated in Figures 7, 9, 10, 11 and 12 were all made from 35 mm. color transparencies using this technic.

SUMMARY

1. A means of producing excellent standardized 35 mm. color transparencies of all types of dental subjects with a minimum expenditure of time is presented.

2. In order to reduce the error factor as many variables as possible have been eliminated by standardizing whenever practicable. For practically all the exposures described an f:16 aperture open-

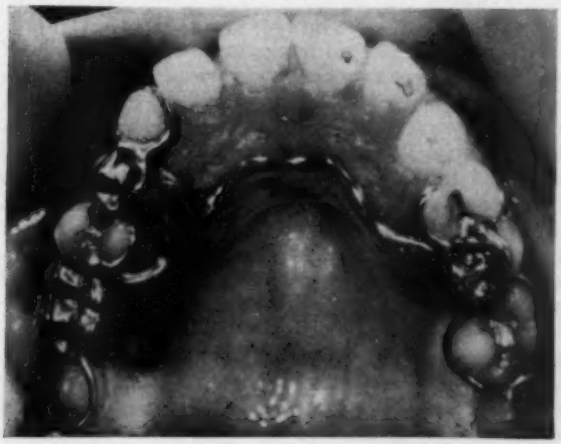


Fig. 10 • Mirror exposure illustrating a partial denture having a palatal bar crossing in the rugae area. (S.F.A. with 12 mm. tube 1/10 at f:16)

Fig. 11 • Direct exposure of a postoperative cystic aperture in the upper cuspid area. (S.F.A. with 22 mm. tube 1/15 at f:16)

Fig. 12 • Mirror exposure of the lingual surface of the upper anterior teeth. (S.F.A. with 12 mm. and 30 mm. tubes 1/15 at f:16)

ing is used, the lighting is constant and the lens is set at infinity and locked in its mount.

3. Focusing is quickly and accurately accomplished as a result of the extreme adjustability of the equipment and the direct focusing through the ground glass viewer of the copying attachment.

4. Immobilization of the entire assembly, when the desired focus is obtained, is immediately accomplished with the simple locking devices.

5. Tables 1, 2 and 3 indicate the extensions required for the various field sizes desired. The shutter speed, aperture opening, exposure factor, distance from the lens to the subject and the ratio of reduction or magnification for all standard types of intraoral and extraoral photographs are also indicated.

6. Light meter readings are seldom required. If they are, Table 4 enumerates the correct shutter speed to be used with the various extensions.

7. The entire assembly may be transferred from one dental unit to any other of the same type, to the original tripod or to an enlarging stand with minimum expenditure of effort and time.

8. The equipment can be used for photographing sterile oral surgical procedures in a standard dental operating

room with little hazard of contamination of the sterile field.

9. Any 35 mm. camera having a readily detachable lens assembly for which a copying attachment is manufactured, can be adapted to the assembly and technic described.

10. The size of the field to be photographed and its accompanying ratio of magnification or reduction can easily be changed from one that is 1 by 1⅛ inches which is approximately a 1:1 reproduction to one that is 14 by 21 inches with a reduction of 15:1.

CONCLUSION

1. The description of the equipment tables and technic may seem complicated. However, the actual operation for production of excellent results is very simple.

2. Because of the ease of manipulation, efficiency, ready mobility, accurate focusing and speed in accomplishment, inexperienced personnel may readily master this technic and equipment. It lends itself equally well for use in private practice, in large clinical organizations and in educational institutions.

1913 greetings from Homer C. Brown, president

At the ninety-second annual session of the American Dental Association this month in Washington, Homer C. Brown, president of the Association in 1913-14 when it was known as the National Dental Association, will be honored at a testimonial luncheon.

The year 1913 was a year of achievements and of beginnings for the Association. Reorganization plans had been completed and approved, and at the annual meeting, a new Constitution and Bylaws went into effect which allowed affiliation as constituents by the state dental societies. Dr. Brown, in his "Greetings from the President," confidently predicted that the membership figure, which had still not yet reached 1,000, would increase to "15,000 at some early date."

Speaking recently of those early years, and of the efforts of himself and his colleagues in the Association to promote the reorganization program, Dr. Brown said that "few if any of the members know anything about the difficulties encountered . . . [in establishing] a National Dental Association—a representative one rather than one in name only."

Historians, viewing the achievements of the dental profession in greater perspective, and in relation to concurrent developments in science as well as in the economic and social structure, will record the contributions made by those early members who, with Doctor Brown, recognized the place of dentistry in the health sciences and had the vision and wisdom to convert their convictions into action.

The Past Presidents' Club, meeting in Atlantic City last year, voted to request publication of Doctor Brown's 1913 "Greetings from the President" in view of its unusual interest. The Editor takes pleasure in reprinting this article, 38 years after its appearance in the first issue, November 1913, of the *Official Bulletin of the National Dental Association,* forerunner of THE JOURNAL.

GREETINGS

As president of the National Dental Association I extend fraternal greetings to the ethical dental profession and will briefly review the history of our organization, as well as give the present status and outline some few possibilities as they appear to me.

The American Dental Convention[1] was organized in 1855 with a membership of 80, and was reorganized in 1859 as the American Dental Association. This association combined with the Southern Dental Association in 1897 and formed the National Dental Association. In the early years the membership was naturally limited and, so far as I have any information, there has never been a time when the association had 1,000 active members. In the past few years there has been a decided and stimulated interest in both local and state organizations, which resulted in greatly increased memberships. This would have materially increased the membership in the National, except for the fact that there had been more or less agitation, covering about the same period of time, relative to its reorganization. Finally, after general and liberal discussion of various plans, and after considerable work by committees and others actively interested, a plan similar to the American Medical Association was agreed upon at the Cleveland meeting in 1911, and a new Constitution and Bylaws adopted at the Washington meeting in 1912, which, in a preliminary way, became effective during the 1913 session at Kansas City. However, the 1914 meeting to be held at Rochester, N. Y., July 7th to 10th, will be, strictly speaking, the first meeting under the reorganization.

The fiscal year has been made to correspond with the calendar year, and annual dues of $1.00 per member, payable in advance, are due January 1, 1914, but there is provision for payment up to within 30 days prior to the annual session. Some few state societies collected dues from their members in 1913, but only in two instances was such payment made to the National in conformity with the provision for paying dues, even had the 1913 meeting been the first under the reorganization.

Instead of having from 700 to 900 members, as heretofore, I confidently expect at least 12,500 paid members for 1914 and am optimistic enough to think that this number will be considerably increased. When it is understood that practically all the state societies have voted to become constituents of the National—nearly all of these coming in with their full membership—you can readily appreciate how this is made possible. For instance, Illinois 1,600, New York 1,300, Ohio 1,000, Indiana 950, Iowa 700, Massachusetts 650, Missouri 600, Minnesota 550, California 500, Wisconsin 500, Kansas 400, Connecticut 350, Nebraska 350, Colorado 300 and Tennessee 250. These 15 states give us a membership of 10,000 and when we add to this the other state societies which have come in with their full membership, ranging from 250 down, as well as Pennsylvania, Michigan and Texas as constituents without their full list of members—although they probably will do this at their next meeting—it will readily be appreciated that my estimate is extremely conservative and that our membership should at least reach 15,000 at some early date.

Appreciating that there are some members of our profession who are active in their state societies, but seem-

1. Since the original publication of this article, Dr. Brown has indicated an error of historical fact in the opening sentence of the second paragraph. The American Dental Convention and the facts with regard to its founding and original membership there given do not refer to the American Dental Association. A convention of delegates met at Niagara Falls, August 3, 1859, for the purpose of considering the establishment of a "delegated" national dental association. At a second meeting of the delegates at Washington, D. C., July 31, 1860, the American Dental Association was actually founded.

ingly have no desire or ambition to assume similar relations with the National, prompts me to anticipate their question: "What will be the benefits of the National and what will the National do for me?"

First—An organization with a membership anything like the number above given is certainly worthy of most favorable consideration and can be expected to wield a progressive influence in many ways. We need only to refer you to two instances more fully presented in this, the first issue of our *Bulletin;* the announcement of the Scientific Foundation and Research Commission and the Relief Fund Committee. The one is conducting an aggressive campaign which we think will do more to advance the dental profession in the estimate of the learned professions and the laity, than any other movement heretofore undertaken. The success of their efforts will not only bring credit and benefit to every dentist, but the greatest benefit will be for the uplift of humanity. The other plans to make easier the closing days of those of us who may be so unfortunate as to need just such assistance as can be rendered through such a fund and such an organization as ours. The liberal contributor of this decade, when he is producer, may be the grateful recipient of such aid in the next, when he is a non-producer. I respectfully request that you read both these announcements and ask yourself the question: "Is it not a duty, aye, should it not be a privilege, to belong to and assist this Association in every possible way, even if nothing was to be accomplished by co-operation in securing National legislation, uniform state legislation, due and adequate recognition in public health and school questions and a uniformity in the dissemination of information to better educate the laity as to the proper use and care of the mouth and teeth?"

Second—I am frank to state that in my opinion, we are planning to give more for $1.00 than probably any other organization has ever attempted, as follows:

(1) The prestige of membership in the National Dental Association.

(2) An appropriate Certificate of Membership, suitable for framing. It will be clearly shown on the face of the Certificate the year for which dues have been paid.

(3) We propose to send out at least two, if not three, additional *Bulletins* prior to the Rochester meeting and hope to give the complete program in the last issue. This *Bulletin* will be sent to the entire membership of every state society, regardless of affiliation, provided that the secretaries of these societies furnish our general secretary with their list of members, as has been requested.

(4) Provision will be made to furnish our members with the proceedings of our meetings in some form.

(5) It is confidently expected that a National Dental Journal will be published at an early date and this will go to our entire membership and our proceedings will then reach the members in our journal. It is generally agreed that it is important to establish this journal at the earliest possible date, and we have reason to believe that this can be done by January 1, 1915. However, it must be definitely understood that when the National Dental Journal is established that the National dues are to be increased to two dollars, which, of course, includes the journal and all other privileges of membership. The regular subscription price of the journal to non-members will be $2.00, and every ethical dentist should take an active interest in making it possible to have a creditable National Dental Journal.

The new Constitution and Bylaws make provision for our present members, members from any state dental society which votes to become a con-

stituent of the National and for the members of the Army and Navy Dental Corps. Any state society may become a constituent by officially voting to affiliate and by amending its constitution and bylaws to harmonize with those of the National. Under these provisions a state society may become a constituent without bringing in its full membership. But considering the low dues, the many advantages and the fact that practically all societies have voted to come in with their full list of members, should prompt those who have not done this, and those societies which have not acted, to make provision to come in with all their members. Such a procedure simplifies the bookkeeping and record work in both state and National organizations and is really the only way that such affiliation should exist.

The one thing that will make these things possible, in their fullest sense, and the organization the success that it should be, will be the loyal support of practically every eligible dentist; therefore, we feel thoroughly justified in soliciting your hearty co-operation in making the National Dental Association one that will wield a beneficial influence for all that is progress in dentistry. We also believe that the only creditable or honorable course to pursue would be for all to loyally co-operate in giving the adopted plan a thorough and fair trial. Any defects will naturally develop as quickly under favorable conditions as the reverse and, with our democratic and representative form of organization, we certainly can rely upon the delegates from the various constituent societies to take such action as is thought best to conserve the interests of all concerned.

The evaluation of clinical competence

Carl Frech, D.D.S., Gary, Ind.

The Congress on Dental Education and Licensure was held at the Stevens Hotel, Chicago, February 3, 1951. Representatives from practically every dental school and every state board of examiners in the United States, and several from Canada, were present at this meeting. This Congress was one of the seven sponsored by the Council on Dental Education during the past 10 years to discuss the mutual problems of the examining boards and the schools.

The program for the seventh Congress was developed through the help and suggestions made by Henry M. Willits, chairman of the Council on Dental Education, J. Roy Blayney, director of the Zoller Memorial Dental Clinic in Chicago, Otto W. Brandhorst, dean of the School of Dentistry of Washington University in St. Louis, Charles W. Freeman, dean of Northwestern University Dental School in Chicago, Shailer Peterson, secretary of the Council on Dental Education, together with the author of this article, who was chairman of the committee on arrangements. Previous Congresses have

Digest of report of the seventh Congress on Dental Education and Licensure conducted under the auspices of the Council on Dental Education of the American Dental Association, February 3, 1951, Chicago.

Secretary, Indiana State Board of Dental Examiners.

dealt with a variety of subjects, all of which were of interest to both the dental examiners and the dental school teachers. On two previous occasions attention was given to methods of examining. Directly following one of the Congresses, the American Association of Dental Examiners sponsored its first seminar on testing, which was held in San Francisco in October, 1949, and was followed in February, 1950, by a similar seminar devoted to testing technics in Chicago. A third seminar was held in Atlantic City in October, 1950, and all three of these were devoted to a discussion of examinations in the field of the basic sciences. At the meeting of the American Association of Dental Examiners in Atlantic City in October, 1950, evaluating clinical competence was selected as the topic for the next seminar. The committee planning the seventh Congress on Dental Education and Licensure felt that it would be desirable to give over one of its meetings to a general discussion of examination technics with a view to setting the scene for the coming seminar which would be devoted specifically to methods of evaluating clinical competence and ability.

The program "Methods for the Evaluation of Clinical and Technical Competence" was as follows:

MORNING SESSION

Moderator • Charles W. Freeman, president, American Association of Dental Schools, Chicago.

Papers • "A report of a survey on the current practices among the state boards of dental examiners in evaluating clinical procedures": Herbert L. Bunker, vice-president, American Association of Dental Examiners, Junction City, Kan.

"What is the relative importance of theory examinations as compared to the practical examinations in evaluating the applicant's competence to practice": B. O. A. Thomas, executive officer of the department of periodontology, School of Dentistry, University of Washington, Seattle.

"Is the present practical examination a valid measure of competence and should a candidate be failed for poor performance on a single portion of the examination?": Robert R. Gillis, past president, National Board of Dental Examiners and Indiana Board of Dental Examiners, Hammond, Ind.

"How can examination 'keys' be constructed for the evaluation of clinical work?": A. Raymond Baralt, dean, Chicago College of Dental Surgery, Loyola University, Chicago.

AFTERNOON SESSION

Moderator • Philip L. Schwartz, president, American Association of Dental Examiners, New Brunswick, N. J.

Papers • "From the point of view of the dental school, how should one prepare a test for evaluating knowledge and ability in the field of prosthetics?": Ray V. Smith, professor of prosthetic and crown and bridge laboratory, College of Dentistry, State University of Iowa, Iowa City.

"From the point of view of the dental examining board, how should one prepare a test for evaluating knowledge and ability in the field of prosthetics?": James V. Giordano, past president, New Jersey Board of Dental Examiners, Paterson, N. J.

"From the point of view of the dental school, how should one prepare a test for evaluating knowledge and ability in the field of operative dentistry?": Drexell A. Boyd, professor and head of operative dentistry, School of Dentistry, Indiana University, Indianapolis.

"From the point of view of the dental examining board, how should one prepare a test for evaluating knowledge and ability in the field of operative dentistry?": Arthur W. Easton, president, Maine Board of Dental Examiners, Norway, Maine.

Summary • Carl A. Frech, secretary, Indiana Board of Dental Examiners, Gary, Ind.

In a foreword given by the writer, emphasis was laid upon the fact that the schools and examining boards are often criticized severely for the failure to bring their examination requirements up to date. These criticisms are usually in the form of such questions as:

1. Why do the schools and boards require foil restorations when very few foil restorations are used in actual practice?
2. Why do some boards require a Richmond crown when no Richmond crowns are used today?
3. Why spend time on denture setups when the majority of the dentists do not set up their own dentures?
4. Why not require a silicate cement or acrylic material for anterior restorations since these materials are used in most of the anterior restorations today?

The observation was expressed that these criticisms, plus many others, would be answered by the speakers of the day.

STATE BOARD METHODS OF EVALUATING CLINICAL PROCEDURES

In a survey of the current practices among state boards of dental examiners in evaluating clinical procedures, Herbert L. Bunker, vice-president, American Association of Dental Examiners, Junction City, Kan., gave a summary of the present day requirements of the various state boards. Data assembled from the files of the Council on Dental Education showed that in the operative section 39 states require a gold foil restoration; 40 require an amalgam restoration; 29 require a gold inlay; 11 require a silicate cement or acrylic resin restoration; 9 require a prophylaxis and 5 require an extraction. In prosthetics, 36 states require full upper and lower setup; 5 require a demonstration of impression technic, and 2 the completion of a full upper and lower denture; 15 require an anterior three-quarter attachment, and 4, a posterior attachment; 4 require a bridge attachment, but do not specify the type; 2 require a cast crown, 3 have Richmond crown requirements; 16 require bridge construction, 9 of which use soldered dummies; 3 require pontics and 4 do not specify; 1 state requires jacket crown preparation; 16 require oral diagnosis and roentgenographic interpretation; 8 require treatment planning and 5 require an extraction. This report stressed the fact that many boards are forced to limit the scope of their examinations because of the limited time allowed them for the conduct of their licensing examinations. It was also pointed out that those boards which do not have dental schools within their states are severely handicapped by the necessity of conducting their examinations in diverse places such as hotels or prisons.

IMPORTANCE OF EXAMINATIONS IN THEORY AND PRACTICE COMPARED

B. O. A. Thomas, executive officer of the department of periodontology, School of Dentistry, University of Washington, Seattle, was of the opinion that neither the theory nor the practical examination, taken alone, could be considered an indication of a candidate's potentiality in the practice of dentistry. Proficiency in theory with a lesser degree of operative ability is not the ideal basis for a successful practice any more than the reverse of this situation would be. The knowledge of why and how to proceed in a given case ranks equal with the ability needed to perform the services.

Can it be best determined how well a dentist is able to perform the duties actually required of him in his office by (1) written examinations alone, (2) practical examinations alone, or (3) combined written and practical examinations? It is agreed by most persons interested in the problem that one of our fundamental difficulties in dentistry has been the great emphasis placed upon the technical aspect of accomplishment without a concomitant emphasis upon the

scientific and cultural phases of dental education. To quote O'Rourke and Miner:[1]

> The traditional, but fallacious, concept of skill as something almost entirely manual is common, and objectives organized around this concept have done more harm than any other single factor in dental education. Harm has resulted, because the great concern for manual ability and digital dexterity as the controlling factors in effective service implied a denial of the existence, or at least the significance, of dentistry's intellectual content. . . .
>
> Very frequently simple clinical problems, approached empirically, are given unwarranted complexity which could not possibly exist if attempts toward their solution were based on fundamental principles. . . .
>
> If the student in his attempts to solve clinical problems is not taught to refer to the principles found in the basic sciences, he will become one of a crop of hardy empiricists, who have wasted a good part or all of the time used in the basic courses; and although he may get off to a good start in private practice, his professional growth will be narrow and limited.

Personalities and characteristics of individual candidates have a bearing on the outcome of an examination. The slow methodical operator is at a disadvantage because of the time limit placed on examinations. Nervousness may play an important part in the quality of work produced under the pressure of a licensing examination.

PRESENT PRACTICAL EXAMINATION AS VALID MEASURE OF COMPETENCE

Robert R. Gillis, past president, National Board of Dental Examiners and Indiana Board of Dental Examiners, Hammond, Ind., discussed the question whether a candidate should be failed for poor performance on a single part of the examination. A comparison was drawn wherein a candidate for licensure was likened to a building contractor. If a building, which is represented as faultless, shows definite evidence of faulty construction, the architect is justified in rejecting the building and suspecting the contractor to be a poor builder. By the same token a dental examiner, or an instructor in school, who finds some portion of the candidate's work faulty on an examination, is justified in failing the candidate as unready for the responsibilities of dental practice. Any candidate who recognizes a weakness in his demonstration and corrects it, or if it is not correctable, quits the examination to wait a future time, is to be credited with good judgment. But any candidate who fails to recognize his error or sin of omission must be failed. Such a candidate is not sufficiently responsible and prepared to engage in practice.

This paper took issue with some of the boards that no longer require a denture setup on their examinations, and asserted that such a change is inexcusable, lamentable, and ultimately disastrous. Neither is it consistent with the profession's effort to maintain control over laboratory service nor does it enable the student to maintain his independence from commercial laboratories. Moreover and more important, aside from the bodily systemic or constitutional aspects of dental service, dentistry is occlusion. No other department of dental instruction can so thoroughly teach the proper concept, the vital importance, and the application of basic principles of occlusion as does full denture construction. Emphasis was placed upon the point that the practical examinations should have a broader scope and include some of the newer phases of dentistry while still retaining the basic essentials now in the examinations. Since lack of time is the main reason for limited coverage of present examinations, a possible solution to this problem was offered. This was the delegation of the theory portion of the examination to the National Board of Examiners and an expansion of the prac-

1. O'Rourke, J. T., and Miner, L. M. S. Dental education in the United States. Philadelphia, W. B. Saunders Co., 1941, p. 48, 145, 146.

tical portion to include the time now taken for the theory on the licensing examination.

"KEYS" FOR EVALUATING CLINICAL PERFORMANCE

A. Raymond Baralt, dean, Chicago College of Dental Surgery, Loyola University, Chicago, discussed methods of determining clinical competence. Clinical evaluation has for its purpose, he said, the assessment of the individual as to his ability to practice his profession. Clinical evaluation methods should meet the standards for a good testing measurement; namely, validity, reliability and usability. Validity refers to the truthfulness of the test; reliability, the consistency; and usability, the ease of administration.

One method that might be used to obtain these elements in a clinical testing procedure would be by the construction of a "key" to aid in evaluation. Just as it is necessary in a written examination to define and identify the knowledge that is to be elicited from the student, so also by the clinical examinations given, the kind of performance and level of proficiency must be defined that is expected from these students. This "key" should give concrete evidence as to whether or not the person being evaluated shows satisfactory performance in the technic being evaluated.

The application of a scale of this type leaves something to be desired as specific items differ in difficulty. Also, standards set by the examiners, or instructors, must be well understood among themselves so that they can be uniformly applied in any evaluation. Possibly this limitation gives the greatest strength to this technic of evaluation.

If then, the level of accomplishment is understood and the standards set, this rating scale should more accurately measure the essential technics necessary to good dentistry and the tests will be closer to attaining their objective.

As a suggestion toward a "key" for the grading of practical examinations, Dr. Baralt submitted a check-list. One portion of this check-list was prepared so as to allow the teacher or examiner to evaluate the five steps in operative dentistry, which are as follows: diagnosis, patient approach, cavity preparation, manipulation and insertion of filling material, and finished restoration. Dr. Baralt indicated that each of these five steps should have a separate check-list enabling the teacher or examiner to evaluate each step in terms of its essential and important parts.

Dr. Baralt demonstrated the use of the following check-list to evaluate one phase

1. Outline form	☐ Unsatisfactory	☐ Acceptable	☐ Average	☐ Good	☐ Excellent
2. Resistance and retention form	☐ Improper	☐ Acceptable	☐ Average	☐ Good	☐ Excellent
3. Convenience form	☐ Unacceptable	☐ Acceptable	☐ Average	☐ Good	☐ Excellent
4. Caries removal	☐ Incomplete	☐ Acceptable	☐ Average	☐ Good	☐ Excellent
5. Enamel margin finished	☐ Improper	☐ Acceptable	☐ Average	☐ Good	☐ Excellent
6. Finished preparation	☐ Incomplete	☐ Acceptable	☐ Average	☐ Good	☐ Excellent

of operative dentistry—namely, cavity preparation.

TESTS OF KNOWLEDGE AND ABILITY IN PROSTHETIC DENTISTRY

Ray V. Smith, professor of prosthetic and crown and bridge, College of Dentistry, University of Iowa, Iowa City, discussed the methods of testing knowledge and ability of students in the field of prosthetic dentistry from the viewpoint of the dental school. Success in prosthetic dentistry requires more than the ability to learn the abstract, or what is generally called intelligence. It requires, in addition, manipulative skill, mechanical comprehension, artistic ability, color discrimination and social ability to apply this knowledge to the practical case. To construct tests to measure achievement in all its ramifications requires considerable effort. It is only after the course has been analyzed and its goals and objectives defined that tests can be built to measure achievement toward those objectives.

There are two types of examinations required in prosthetics: (1) paper and pencil tests, (2) performance tests. There are two forms of paper and pencil tests; namely, essay and objective form. Each of these forms is used extensively and when properly prepared, administered and scored, both seem to yield results. Performance tests may consist of special manipulative exercises coming at the end of a semester, or the laboratory and clinical projects set up for training purposes may be considered tests of skill.

Whatever form of examination is used, a "key" should be constructed to aid in scoring. The "key" consists of the correct answers to the questions asked in paper and pencil tests and a list of requisites which make up an acceptable piece of work for manipulative projects. The key for a clinical crown and bridge test, for example, should contain such items as occlusion, fit of attachments, alignment of pontics, and so forth. With such a key, a demonstrator would have something to work from in assigning clinical grades and, if used by all in the department, the key would establish a base line which would make for uniformity in the grading.

Whether it be a paper and pencil test or a laboratory or clinical project, the key is an important aid in grading. A key for scoring a bridge in the clinic should list the requisites which go to make up an acceptable piece of work. This list will contain such items as the following:

1. Occlusion and articulation	1.0
2. Preparation of abutment teeth	1.0
3. Fit of attachments	1.0
4. Alignment of pontics	1.0
5. Relationship of pontics to tissue ridge	1.0
6. Anatomic form	1.0
7. Finish	1.0
8. Esthetics	1.0
9. Phonetics	1.0
10. Professional relationship of student and patient	1.0
	10.0

James V. Giordano, past president, New Jersey Board of Dental Examiners, Paterson, N. J., discussed the same topic from the point of view of the dental examining board. The subject of prosthetic dentistry includes full and partial dentures and crown and bridge, and is one which has advanced and expanded so greatly and the technics and methods are so varied, that it has become a real problem from the standpoint of the schools to teach and for state boards to examine. Realizing the limited time available to the schools to cover all phases of prosthetics so as to provide clinical experience sufficient to assure proficiency, the boards are faced with the problem of determining what minimum requirements of proficiency should be expected and how to determine if the candidate for licensure possesses these qualifications. State boards are concerned that those licensed shall possess sufficient knowledge and ability in prosthetic dentistry so that

they can and will render the public a satisfactory service. This will maintain the prestige of dentistry in this field so as to preclude any attempt of others with sinister motives to take over any part of this important phase of dentistry.

Should we not expect a graduate to be able in full denture construction (1) to take an adequate impression on which to construct a full denture; (2) to obtain proper recordings for the establishment of vertical dimension, centric relation, eccentric movements of mandible; and (3) to select and set up teeth and secure balanced occlusion? In partial denture construction should we not expect a graduate to be able (1) to plan a partial denture; (2) to prepare the mouth to a reasonable degree to receive such a denture, including balancing of occlusion and preparation of teeth for occlusal rests; (3) to take an adequate partial impression; (4) to select and set up teeth; and (5) to instruct the technician properly as to requirements of a case?

In crown and bridgework, since it is generally conceded that a full coverage crown is a good bridge attachment and is the one most used, should we not expect a graduate to be able to prepare for and construct reasonably well such an attachment? And since bridgework affecting anterior teeth requires the use of an attachment which will be esthetic as well as provide adequate retention, and since it is generally agreed that the three-quarter crown or Carmichael type restoration provides such an attachment, should we not expect a graduate to be able to prepare for and construct such a crown?

The larger states are handicapped in giving examinations because the large number of candidates precludes the possibility of sufficient time being allotted to the individual candidate. One method of overcoming this handicap would be for the boards to accept certification from the dental schools for all candidates in the upper half of their class in lieu of the practical examination. This would reduce the number of candidates and allow the examiners more time to evaluate those who had to be examined. It would also furnish an incentive for students to do more and better clinical work in school.

TESTS OF KNOWLEDGE AND ABILITY IN OPERATIVE DENTISTRY

Drexell A. Boyd, professor and head of operative dentistry, School of Dentistry, Indiana University, Indianapolis, discussed the methods of testing the knowledge and ability of students from the viewpoint of the dental school. In the field of operative dentistry, as in many divisions of learning and education, there are two distinct qualities that must be evaluated if a true appraisal is to be made of the educational attainments of the senior student. These are:

1. Determining the extent of professional learning and development in the field of operative dentistry.
2. Determining to what degree operative skill has been attained.

When evaluating or examining senior dental students in the field of operative dentistry for an appraisal of their learning, either as habit formation or as a creative process, the teacher should, first, measure the extent of the factual information fixed in their minds and determine whether or not they can use such factual knowledge as it pertains to professional problems. Second, the teacher must measure the student's degree of skill in applying this knowledge to operative procedures.

A device which affords an excellent means of adding further information for evaluating student knowledge and interest and which uses both objective and subjective principles is that of requiring students to contribute to or conduct seminars or symposiums on different phases of operative dentistry. In substance Dr. Boyd said: We have used this method for

a number of years. The individual student or groups of students are permitted to select and present a subject of their own choosing. Such a procedure, we believe, provides us with much valuable information about the student that might escape us if conventional examinations were the sole means of evaluation. Such a method allows the student to follow his own interests and ideas as well as affords him an opportunity to express himself on material not mentioned or fully covered by the course. Too often only such material as is considered to be necessary or essential in the opinion of the individual instructor will be included in a course. As a result, often many valuable, interesting and important phases of operative dentistry are slighted.

Evaluation of the student's knowledge of theory can be derived from the following three methods which are easy and efficient to apply:

1. Objective examinations for the purpose of determining factual knowledge or information.
2. Essays and discussions to determine the individual's ability to apply such knowledge.
3. A method, such as seminars, for examining the individual's intellectual initiative by allowing investigation and expression beyond that contained in the regular theory course.

The evaluation of the senior student's clinical ability may be accomplished by:

1. Assigning a prescribed number of procedures which will afford an opportunity to observe the methods and principles and in addition provide an opportunity to observe the quality of the finished product.
2. Requiring complete patient service which involves the student's ability to plan treatment and execute the necessary operations for its completion.
3. Appraising the student's operative accomplishments during the second semester of his senior year. Certainly this would be considered a "broad comprehensive examination."
4. Giving specific comprehensive or practical examinations to determine the student's ability to work under pressure or meet a specific requirement.

Arthur W. Easton, president, Maine Board of Dental Examiners, Norway, Maine, discussed the same subject from the viewpoint of examining boards. The New England trend in preparing tests for evaluating knowledge and ability in operative dentistry, Dr. Easton explained, indicates that sole reliance is not placed on the conventional plastic and gold foil filling requirements as a completely reliable index of a candidate's operative ability. An examination in operative dentistry should simulate, to the fullest extent possible, the environment that will surround the new dentist's first "private patient experience." The examining board wants to know what percentage of the normal and abnormal conditions present in the patient's mouth the candidate will recognize and how he is going to apply the practical things he has been taught in operative dentistry.

The Maine examiners, through the cooperation of legislators and college deans, now have available out-of-state facilities necessary for the conduct of this type of examination.

A majority of the New England dental examiners believe that the following criteria constitute a comprehensive test for determining knowledge and ability in the field of operative dentistry:

1. Estimate of the candidate and his operative ability as presented by his college faculty.
2. Personal record, covering morality, personality, ability and achievement.
3. Student's appearance and conduct while rendering service to his patient—cleanliness and orderliness of person and equipment.
4. Quality of roentgenograms and interpretation.

5. Clinical examination and oral diagnosis.
6. Oral examination.
7. Logical thinking and visual comprehension.
8. Treatment planning.
9. Manual mechanical dexterity and ability in cavity preparation and construction of restorations.
10. Evidence of understanding of the relationship of mechanical procedures to biological consequences and their import to public health.

SUMMARY

In summarizing the group of fine papers presented above, Dr. Frech pointed out, one is confronted with an excellent array of subject material, presented in an excellent manner and showing considerable time and thought spent in preparation. These papers prove that the practical examinations as required by the majority of the schools and boards of today are solidly based on the fundamentals of dentistry. They prove that thought has been used in formulating the examinations and that the objective is an evaluation of the ability of the dental graduate to enter upon the practice of dentistry. Some variations have been shown in the methods used to achieve this objective, but the over-all picture remains the same in the majority of the examinations. In the expansion of dental education from the three-year to the four-year course, and then to the present six-year course, many new subjects have been added to the curriculum of the dental school, and the coverage of former subjects has been broadened and carried into more detail. This broadened coverage has been mainly reflected in the theoretical portion of the examinations; the practical portion has remained more constant. The majority of the boards require a foil filling or an inlay or both, an amalgam filling, and some a silicate cement filling for their operative examinations; and a denture setup and bridge for their prosthetic examinations. These six items would appear to be the ordinary or "bread and butter" items that the average dentist is expected to perform efficiently if he is entitled to open an office and perform dental services for the general public.

It was interesting to note that the schools and the examiners recognize that changes must be made from time to time in the examination requirements in order to keep abreast of progress in the field of dentistry. The examination requirements are prepared with a great deal of thought, and each specific requirement has a definite objective in evaluating the ability of the candidate for general practice. Criticism of these requirements rarely results in substitute requirements that would give the same evaluation of a candidate's ability as the ones now in use. Neither the schools nor the boards are willing to discard the foil filling as an examination requirement until a comparable test can be substituted which will give the same evaluation of a candidate's ability to apply his knowledge. The same attitude applies to those boards which require the construction of a Richmond crown. Admittedly this type of crown is obsolete but it still is an excellent test of a candidate's soldering ability. Since the time element is a potent factor limiting the scope of the licensing examination, several methods of overcoming this difficulty were discussed. The consensus was that instead of discarding some of the basic tests now used, more time should be devoted to the practical examination in order to encompass the newer phases of dentistry. Two alternatives were suggested: (1) an additional one or two days for the licensing examination; (2) the delegation of the theory portion of the examination to the National Board or the acceptance of the school's grades in lieu of the theory examination.

The subjects under discussion were of particular interest to the examiners inasmuch as the seminar at the Washington

meeting of the American Association of Dental Examiners will also deal with practical examination requirements and the methods of grading them. Schools and boards participating in this seminar will give workshops on their methods of conducting and grading practical examinations. It is hoped that a definite key for the grading of all phases of the practical examination will be evolved from this or succeeding seminars.

The Congresses on Dental Education and Licensure sponsored by the Council on Dental Education have all endeavored to include in their programs subjects of mutual interest to both the school and the state board groups. Previous Congresses have dealt with such subjects as preprofessional education, the licensing of specialists, dental aptitude testing, methods of constructing achievement examinations, the philosophy of state licensure, the function of National Board examinations, special plans and curricula in dental education, functions of an accrediting agency, methods of teaching, integration of medicine and dentistry, and auxiliary agencies in dental practice.

It is the wish of the Council and its committee on arrangements to plan a long-range program for future Congresses. Suggestions and recommendations are solicited from both the dental examiners and the dental school teachers. Recommendations have been made that these Congresses include topics of current local or national interest, such as the problems dealing with the national emergency, for example. It has been the opinion of the Council and its committee, however, that these Congresses should be restricted to problems of long-range interest.

It is not possible to announce at this time the specific topic which will be considered at the eighth Congress on Dental Education and Licensure to be held in Chicago during the early part of 1952. Some of the topics that have been suggested are as follows: accreditation of dental schools outside the United States, state reciprocity, and graduate and postgraduate and refresher training programs. It has been extremely gratifying to those who have attended the Congresses to observe the fine spirit of cooperation between the examining group and the dental school group. While there are differences of opinion on many points and differences in emphasis, these Congresses have undoubtedly been responsible for helping representatives from one group to understand better the activities and problems of the other group.

504 Broadway

Intellectual Freedom • Science will fulfill what is demanded of it only on condition that it retain its freedom and independence in its work. In spite of all necessary limitations, liberty remains an essential characteristic of science, and spiritual and intellectual freedom is a necessity for scientists. Every true scientist desires to serve his nation. His work, however, cannot be complete if it is merely a service to his nation. *Ferdinand Sauerbruch, (Speech at Dresden, September 22, 1936) The Scientific Monthly 72:258, April, 1951.*

The New Zealand school dental nurse system

A study of dental public health services in New Zealand, published in part in the September, October and November, 1950, issues of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION and later published in full in pamphlet form, presented a critical analysis of the New Zealand school dental nurse program. The report was prepared by Allen O. Gruebbel, secretary of the Council on Dental Health, who spent two months in New Zealand early in 1950 making the study. Concurrently, two other studies of the program were made, one by dental and government representatives of Great Britain and one by John T. Fulton of the U. S. Children's Bureau. Naturally, the three studies were evaluated carefully by New Zealand dental authorities, including J. Llewellyn Saunders, director, Division of Dental Hygiene, New Zealand Department of Health. Dr. Saunders' comments, published in the April, 1951, issue of the *New Zealand Dental Journal*, are directed chiefly to certain observations reported by Dr. Gruebbel. In an effort to present fairly both sides of the international controversy over the practicality of the school dental nurses program, Dr. Saunders' comments and Dr. Gruebbel's reply are published herewith.

THE NEW ZEALAND SCHOOL DENTAL NURSE: COMMENTS ON RECENT REPORTS

J. Llewellyn Saunders, D.S.O., B.D.S. (N.Z.), F.D.S.R.C.S. (Eng.)

Of recent years, the New Zealand school dental nurse system has come increasingly to the notice of other countries. It has been the subject of much controversy, but in most cases it has been discussed without the advantage of firsthand knowledge of the organisation or its underlying principles.

Early in 1950, by arrangement with the New Zealand Government, three independent investigations of the system were made by accredited representatives from overseas countries. The United Kingdom Government sent a Mission consisting of five prominent members of the dental profession, who were representative of organised dentistry (the British Dental Association), dental education and the dental health services. This Mission was under the leadership of Dr. W. G. Senior, O.B.E., Ph.D., F.D.S.R.C.S., Principal Dental Officer of the British Ministry of Health.

Under the auspices of the World Health Organisation, Dr. John T. Fulton, D.D.S., Dental Adviser to the Children's Bureau of the United States Federal Security Agency, also carried out a study of the New Zealand dental nurse system.

The American Dental Association

Reprinted from the New Zealand Dental Journal, April, 1951.

asked that similar facilities should be granted to Dr. Allen O. Gruebbel, D.D.S., M.P.H., Secretary of the Council for Dental Health of the American Dental Association. This was readily agreed to, and the three studies, all of which were carried out between February and April, 1950, were made entirely independently of one another

In all three cases the Dental Division of the New Zealand Department of Health gave the fullest possible facilities to the investigators, assisted them with their travel arrangements, gave them free access to all school dental clinics throughout the country, and provided them with whatever they asked for in the way of information and statistical material, as far as the statistical system permitted. Most of the investigators spent many hours in conference with myself, as Director, and with my senior colleagues in the Dental Division.

The fullest facilities were also provided for the investigators to meet members of the dental profession, both individually and collectively, and to confer with the chief officials of the New Zealand Dental Association.

THE REPORTS

The results of these studies are to be found in the following reports: *New Zealand School Dental Nurses—Report of the United Kingdom Dental Mission* (published by the United Kingdom Government, 1950); *A Study of Dental Public Health Services in New Zealand,* Dr. Allen O. Gruebbel, D.D.S., M.P.H. (published by the American Dental Association, 1950); and "A Report on the New Zealand National Dental Service," Dr. John T. Fulton, D.D.S. (being published by World Health Organisation, 1951, but by courtesy of Dr. Fulton the writer has received a type-script copy with permission to quote from it).

All three reports follow the same general plan, although they vary in regard to the amount of detail in the different sections. They deal with the incidence of dental disease and the state of dental health of New Zealand children; they describe the organisation of the health services, together with relevant background information of a general nature; they trace the inception and development of the school dental service, with special reference to all aspects of the training and employment of school dental nurses; and they either incorporate their comments in the body of the report, or they devote a special section to discussions and conclusions.

The writer's original intention was to select certain fundamental aspects of the dental nurse system, quote briefly from the three reports, and compare the views expressed, which in some instances are at variance. It soon became evident, however, that without making lengthy quotations (which are precluded by limitations of space), it would not be possible to present fairly the views of the various investigators. It was therefore decided to approach the subject from another angle. Broadly speaking, the reports of the United Kingdom Mission and of Dr. Fulton show the New Zealand dental nurse system in a favourable light, and their comments and conclusions are based on facts which, at the request of the authors, were duly verified by the New Zealand dental authorities before publication. Gruebbel's report on the other hand is critical, and as it was not submitted beforehand for verification of facts, it has been decided to concentrate on this report, and to examine its factual basis.

Except for a brief condemnatory news-release from the American Dental Association which apparently was broadcast to the world press, the first opportunity the writer and his colleagues had of learning the result of Dr. Gruebbel's study was when Part I of the report (Discussion, Comment and Conclusions) appeared in the September, 1950, number

of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

It was immediately apparent that the factual basis of this section of the report was open to criticism, and that too much reliance had been placed on statements which were of doubtful authenticity. The leaders of the New Zealand Dental Association and the public health dental authorities would gladly have provided reliable information, as they did at the request of the other investigators. Having come so far in search of information, these would seem the most obvious sources.

Because the writer had not had an opportunity of seeing the complete report, he found himself at a disadvantage in replying to overseas enquiries which followed the publication of the A.D.A. news-release. A request was therefore airmailed to the American Dental Association in October, 1950, for a copy of the report, but it was not until early this year that one was received. The present opportunity is therefore the earliest that is available to comment on Dr. Gruebbel's published criticisms.

THE GRUEBBEL REPORT

The following quotations from the Gruebbel report, with comments by the present writer, illustrate the contention that Dr. Gruebbel's information was not always reliable:

Page 52: Many of the dentists who were the strongest advocates of the proposal, although still supporters of the plan as originally conceived, express strong dissatisfaction about the increased scope of the service of the school dental nurse and the effect that State dentistry has had on children and parents.

Comment • It is not understood what is meant by "as originally conceived" and "the increased scope." There has been no significant change in the scope of the dental nurses' work since the service first began. In recent years the age to which treatment is provided by dental nurses has actually had to be reduced under pressure of numbers. In any case, as the development of the school dental nurse system has been carried out in close collaboration with the N.Z.D.A. throughout the years, it would be surprising if many dentists held the view ascribed to them by Dr. Gruebbel.

As regards the reported "strong dissatisfaction" at the effect that State dentistry has hand on children and parents, it would be difficult to find any evidence of this. On the contrary, ex-clinic patients are welcomed by the profession as good patients, as they have come to regard regular dental care as normal routine. Likewise the interest of the parents in the dental health of their children has been greatly enhanced through the work of the school dental nurses.

Page 52: Sir Thomas Hunter, the first Director of the Dental School Service, in personal interview, stated that the scope of the service of the school dental nurse has gone far beyond that originally proposed.

Comment • Referring to this statement, Sir Thomas Hunter maintains that his conversation with Dr. Gruebbel has been misinterpreted. No doubt he would have said that the scope of the *service as a whole* had been increased, but he would be referring to the introduction of Social Security treatment beyond the school dental service age-group, and certainly not to the scope of service of the dental nurse.

To quote Hunter, as Gruebbel does on page 28, as having said in 1921 that he envisaged dental nurses as dealing almost entirely with primary teeth has but little significance to-day. The question at issue is whether the dental nurse service *as at present constituted* operates in the best interests of the community.

Page 52: The effect of the dental nurse scheme on the practice and development of pedodontics in New Zealand is deplorable. For more than 20 years dentistry for children has been almost completely relegated to the dental nurse. . . . Since less than 2 per cent of the children in New Zealand receive dental care

from private practitioners, there is almost no interest among the profession in this important branch of dentistry.

Comment • The long-term effect of the dental nurse system on pedodontics is not necessarily bad. There has always been a close link between the dental nurse and the dental practitioner to the extent that in all cases which present features which are beyond the routine care of dental nurses the parents are recommended (by means of a card designed for the purpose) to consult a private practitioner. A "follow up" system is used to ensure maximum results. Although Gruebbel dismisses this with the statement (page 38), "This practice is more often an exception than a rule," Fulton states the position correctly when he says, "It is always a question whether or not any more clinic service should be rendered until the referred treatment is accomplished. If the matter drags on unduly, the child is suspended from further clinic service."

Then again, it has always been the policy, even before the introduction of Social Security treatment, to recommend patients to place themselves under the care of a dentist on leaving the school dental service—advice that was widely accepted. Under the conditions pertaining to-day, most dentists are treating large numbers of children under the Social Security system from 8 or 9 years of age upwards. Another factor is that the establishment of a school dental clinic at any given centre has invariably stimulated local interest in dental health, even to the extent that children who are not eligible for school dental care are placed under a private dentist.

Page 53: An even more remarkable fact is that a few dentists in private practice who wish to learn more about dentistry for children, since they are asked occasionally to treat a child patient, visit the Dominion Training School for Dental Nurses and observe the clinic procedures in that institution instead of visiting the Dental School.

Comment • Not a single instance can be traced of a dentist visiting the Training School for Dental Nurses for such a purpose in the 30 years of the School's existence. The statement is described by the Training School authorities as fantastic. As regards Dr. Gruebbel's interpolation of the phrase "since they were asked occasionally to treat a child patient," this is sufficiently answered in the previous comment. Child patients are by no means as rare as Gruebbel's phrase would appear to indicate, especially now that the Social Security scheme is in operation.

Page 53: The dental nurse plan . . . has seriously hindered the training of dental students and the advancement of dental research. . . . Because of the large expenditure for dental treatment, appropriations for dental research and dental education are greatly curtailed.

Comment • The facts are these. The National Dental Service (school and adolescent), the Medical Research Council (which is responsible for dental research), and University dental education, are three separate and distinct budgetary items. The budgets are prepared and submitted independently by the three bodies concerned, and it has been confirmed officially (which Dr. Gruebbel could have done), that at no time have the budgets for dental research and education been reduced because of the expenditure on treatment, nor have the three items ever been considered in relation to the cost of one another. In these circumstances the assertion that the dental nurse plan has seriously hindered the training of dental students and the advancement of research can scarcely be sustained.

Page 53: The Dominion Training School for Dental Nurses is a magnificent institution from the stand-point of physical equipment. By comparison, the Dental School is a shambles.

Comment • The present Dental School was opened in 1926, whereas the Dominion Training School for Dental Nurses, which cost under £100,000, came into operation as recently as 1940. The former is now about to be replaced, the Govern-

ment having approved of plans for a new Dental School to cost some £500,000. To describe the present Dental School as a "shambles," however, is surely a gross exaggeration, and is scarcely in keeping with what the Editor of THE AMERICAN DENTAL JOURNAL, referring to Dr. Gruebbel's report, describes as "the calm, cold phrases of an impartial investigator."

Page 46: Commenting on the quality of the dental nurses' work, Gruebbel states that he examined 3,220 fillings with mirror and probe, and found 27.9% defective "for one or more reasons." The children were 10 to 14 years of age.

Gruebbel goes on to descibe how 61 bitewings were made of children taken at random from 121 children aged 10 to 14 years. He submitted these to Dr. Kenneth A. Easlick, who on x-ray evidence alone descibed the work as being of "poor quality." Dr. Easlick did indicate, however, that it would have been an advantage to compare this work with similar work done in the United States.

Comment • Relatively few children in the 10 to 14 year age-group are being treated by school dental nurses. Because of the overwhelming number of school children resulting from the high postwar birthrate, the majority of this age-group have been transferred from the school dental service to Social Security.

It has since been possible to identify the group of patients who were x-rayed by Dr. Gruebbel, and it has been ascertained that they were drawn from an Intermediate School and a High School in a South Island centre. It has been established that the majority of these patients had been transferred from the care of dental nurses three years previously. Of the remainder, most had been transferred from the school dental service two years before, and included in the group x-rayed were some who had never at any time been treated by a dental nurse.

By contrast the following are the comments of the other investigators on the subject of quality:

Dr. Fulton • "1. Since the survey in New Zealand included children through the age of fourteen, many examinations were made of children who had passed beyond the limits of the dental nurse service and were currently receiving care from dentists. As the source of treatment was unknown to me at the time of examination, the following device was used to form a judgment of quality. When in the course of examining an older age child, a tooth presented a filling of exceptional merit (such as sound outline and contour, smooth margin, good carving and finish), the recorder was told to place the number of this tooth in the margin of the record form opposite the child's name. At the close of the examination period for that day, each tooth so marked on the record form was checked against the clinic record of the child to ascertain whether a dentist or a dental nurse had filled the tooth in question. Amalgam fillings in 207 teeth were tabbed in this manner. Of that number, 170 (82 per cent) had been placed by dental nurses. This simple test suggests that the New Zealand dental nurses are capable of producing amalgam fillings of good quality.

"2. On two occasions (once during a practical examination) I was invited to inspect cavity preparations as they were completed by dental nurses in the Training Clinic. All told, about fifty Class II cavities in deciduous molars were inspected on these occasions. In my judgment these cavity preparations were quite acceptable in such things as outline form, removal of all carious dentine and extension for prevention. In three of them I had reservations about adequate retention form, and in two some question about the provision for bulk at the isthmus."

United Kingdom Mission • "Our clinical observations were made at the Training School and at school dental clinics in Wellington and in the North and South Islands to the number of approximately fifty. As was to be expected, with the constant supervision of the Training School staff, the clinical standard of the

final-year students was remarkably high. The cavity preparation if anything was on the side of perfection, and the finish of the fillings was very good. This experience was borne out in the field where the same high standard was uniformly evident."

Page 55: For a number of years dental laboratory technicians in New Zealand have attempted to secure changes in the law to permit them to provide direct service to the public. The Labour Government expressed sympathy with the idea and indicated that it would favor legislative action which would permit dental laboratory technicians to provide prosthetic services directly to the public.

Members of the Labour Government presented the argument that although dental nurses are not fully trained dentists, they are permitted to provide intraoral services to the patient, and that dental mechanics were equally qualified to provide prosthetic services for patients. A Petition was filed with the Government by the dental laboratory technicians requesting chairside status. . . . The technicians' Petition was rejected by the Government now in office upon the recommendation of the New Zealand Dental Association.

Comment • It can be stated officially that at no time did the Labour Government "express sympathy with the idea," nor did it indicate that it would favour the legislative action desired by the technicians. On the contrary, the Labour Government rejected no less than two such Petitions, and, since then, the present (non-Socialist) Government has rejected yet another similar one.

Nor is there any evidence to support the assertion that members of the Labour Government presented the argument that because school dental nurses provide intra-oral services, dental mechanics were equally qualified to provide prosthetic services. No record can be found of any Labour or other Member of Parliament having made such a statement. As school dental nurses are members of a State Service, work under direction, and are subject to Service discipline, it is unlikely that these conditions would have any appeal to the dental technicians themselves.

Page 55: The matter (of the Dental Technicians' Petition for chairside status) is settled for the present, but it is the consensus of the dentists interviewed that the proposal will be reviewed if and when the Government officials show a favorable attitude towards it.

Comment • The facts were available, and had Dr. Gruebbel asked for them he could have read the report of the "Government officials" concerned, which would have shown him that they officially advised the rejection of these Petitions.

Page 55: "Although the School Dental Service has been in operation since 1921, the dental health status of young adults who were examined for military service during World War II was not materially improved over that of the recruits in World War I." Gruebbel supports this by quoting the statistics of artificial dentures worn by men in the Army.

Comment • The New Zealand Army Dental authorities state that the statistics quoted for World War II refer to the age group 21-41 years serving in an overseas theatre of war. Men who attained the age of 21 in 1945 (the year the war ended) would be of school entrance age (5 years), and therefore eligible for enrollment in a school dental clinic, in 1929. In that year the field staff of dental nurses numbered only 74. It is clear therefore that of the men who were in the 21-41 age group between the years 1939 and 1945, the proportion who as children could have been under the care of school dental nurses was negligible.

These are some of the more obvious criticisms that can be levelled against the factual basis of the Gruebbel report, but they are sufficient to indicate the need to study all available publications and reports on the subject if a sound conclusion is to be reached on the New Zealand school dental nurse system.

As a public health service, my Department welcomes constructive criticism, and Dr. Gruebbel's criticisms have stimulated us to make a careful review of some of the details of the organisation that we have helped to develop.

On the wider issue, however, we cannot accept the view of the Editor of THE

JOURNAL OF THE AMERICAN DENTAL ASSOCIATION, who in commenting on the Gruebbel report, and commending it to his readers, described the New Zealand dental nurse system as an "unsuccessful thirty-year experiment." This view is not supported by the facts. On the contrary, this service has been the means of raising the standard of dental health of our child population to a high level.

To say that such organised dental care is not preventing dental disease is merely to state the obvious. As a young country with a small population, we must of necessity look to the older and bigger countries, who have the means and the facilities for conducting large-scale research, to point the way in the matter of prevention. But will Dr. Gruebbel tell us where mass prevention of dental caries is being successfully practised? At least our dental health service results in the absence of oral sepsis, the maintaining of masticatory efficiency, and in a growing interest in the retention of the natural teeth—all on a nation-wide basis. Its educational as well as its health value is very considerable. It is effective in controlling dental disease until such time as science provides the key to prevention.

REPLY BY ALLEN O. GRUEBBEL

One of the most difficult tasks in writing a report of a survey, especially when the findings disclose serious flaws in the project under investigation, is to present the facts without offending the sensibilities of the persons who are responsible for the administration of the program. Although my report on the New Zealand dental nurse plan contained a number of criticisms, no offense to any individual was intended.

The comments on my report by Mr. J. Llewellyn Saunders are natural human reactions to defend the concepts and administrative practices of a public health program in which he, as director, apparently firmly believes. My evaluation of the program does not permit me to share his beliefs. Nor can I accept the contention that the information I obtained from various sources is inaccurate. It is not unlikely, but in fact highly probable, that the statements made to me by other individuals in New Zealand are not generally expressed to Mr. Saunders because of his official position with the Government.

No good purpose would be served by engaging in a debate on sources of information, impact of the scheme on the profession and the public, and interpretations of the evidence collected. The recent articles on the New Zealand dental nurse scheme provide sufficient material to permit each person interested to draw his own conclusions.

It is sufficient to state, as a summarized opinion of Mr. Saunder's comments, that even if all of his contentions are correct (which I am not willing to admit) they would not materially change my evaluation of the dental nurse scheme and would not alter my conclusions.

COUNCIL ON DENTAL THERAPEUTICS

Council announces classification of additional products

The classification of products by the Council on Dental Therapeutics of the American Dental Association has been described in a previous report (*J.A.D.A.* 40:489, April, 1950). The Council's program now provides for classification of products in Group A, Group B, Group C and Group D. Products are reconsidered periodically and decisions are subject to change at any time that a substantial amount of new evidence becomes available. The files of the Council contain information on many drugs and dental cosmetics, and inquiries are welcome.

GROUP A

Listing of products in Group A means that at the time of their consideration, the items conformed with the provisions of acceptance established by the Council on Dental Therapeutics and adopted by the Board of Trustees of the American Dental Association. Items in this group will be listed in *Accepted Dental Remedies*, and may use the Seal of Acceptance, unless otherwise provided.

The following additional products are classified in Group A:

Lathanol LAL (National Aniline Division, Allied Chemical & Dye Corporation): A brand of sodium alkyl sulfoacetate. See *A.D.R.*, ed. 16, p. 111. Trademark registered.

This product has been classified in Group A as a synthetic detergent suitable for use as a dentifrice ingredient.

LIDOCAINE HYDROCHLORIDE

The hydrochloride of α-diethylamino-2,6-acetoxylidide.

$(CH_3)_2C_6H_3 \cdot NH \cdot CO \cdot CH_2 \cdot N(C_2H_5)_2 \cdot HCl$
M.W. 270.8

Actions and Uses: Solutions of lidocaine hydrochloride are employed in dentistry for infiltration and block anesthesia. The anesthetic potency of lidocaine hydrochloride is approximately twice that of procaine hydrochloride. Greater depth, a wider area, and a longer duration of anesthesia may be expected, therefore, from its injection than from the injection of the same volume of an equal concentration of procaine hydrochloride.

Acute toxicity studies in animals indicate that lidocaine hydrochloride is more toxic than procaine hydrochloride when the two substances are compared at concentrations above 0.5 per cent. As in the case of other local anesthetics, the toxicity of lidocaine increases progressively with increases in concentration. Lidocaine displays a 40 per cent greater toxicity than procaine at 1 per cent concentrations and a 50 per cent greater toxicity at 2 per cent concentrations. Systemic side reactions and local irritant effects have not been reported more frequently in the clinical use of lidocaine hydrochloride than with procaine hydrochloride.

Solutions of lidocaine hydrochloride are compatible with epinephrine hydrochloride which may be used to prolong the anesthetic action and reduce the toxic effect of the anesthetic by delaying its absorption. It may be used without epinephrine when vasopressor drugs are contraindicated.

Procaine and other anesthetic agents which are derivatives of p-aminobenzoic acid differ in chemical structure from lidocaine. Consequently, the latter is reported to be a useful substitute for the procaine type anesthetics for use by dentists who are hypersensitive to procaine.

Dosage: Solutions of half the concentration of those used in procaine anesthesia should provide equivalent anesthetic potency. Thus a 1 per cent solution of lidocaine hydrochloride may be employed in much the same way as a 2 per cent solution of procaine hydrochloride. When the 2 per cent concentration of lidocaine is employed for routine use, adequate anesthesia may ordinarily be provided with one half the volume commonly suggested for a 2 per cent solution of procaine hydrochloride. The following volumes of lidocaine hydrochloride 2 per cent with epinephrine 1:100,000 have been suggested: for infiltration anesthesia, 1 cc.; for block anesthesia, 1.5 to 2 cc.; in oral surgery, up to 3 or 5 cc. Recommended doses should be exceeded only when conditions indicate the need for especially profound or longer lasting anesthesia. It is desirable to employ the minimal effective dose of lidocaine hydrochloride or any other anesthetic when it is used without epinephrine or another suitable vasoconstrictor.

Properties: Lidocaine hydrochloride may be prepared as a white crystalline material with a melting point of 128 to 129°C. It is very soluble in water and alcohol and freely soluble in ethyl acetate.

Solutions of lidocaine hydrochloride are ordinarily prepared by the action of hydrochloric acid on lidocaine. The aqueous solution is stable and withstands boiling for several hours.

Solutions of lidocaine hydrochloride contain not less than 95 per cent and not more than 105 per cent of the labled amount of $C_{14}H_{22}N_2O \cdot HCl$.

Assay: A suitable procedure for the assay of solutions of lidocaine hydrochloride has been described *(N.N.R.,* 1951, p. 575).

LIDOCAINE (BASE)

Physical properties: Lidocaine, when purified by special methods, is a white, crystalline solid which is substantially free of odor. It melts between 66 and 69°C. The pharmaceutical grade of lidocaine is white to light yellow in color and possesses a characteristic odor. It is very soluble in alcohol and chloroform, freely soluble in benzene, ether, and ethyl acetate and practically insoluble in water.

Tests for Identity and Purity: Lidocaine does not respond to the test for chloride (*U.S.P.,* p. 720) or sulfate (*U.S.P.,* p. 724).

Dissolve 0.1 Gm. of lidocaine in 50 cc. of isopropyl alcohol. The ultraviolet absorbancy (optical density) of the solution as measured at a wavelength of 284 millimicrons in a suitable spectrophotometer using a 1 cm. cell is not more than 0.050 (test for 2-amino-1,3-dimethylbenzene). The ultraviolet absorbancy (optical density) of the solution at wavelengths of 295, 300 and 310 millimicrons is not more than 0.050 (difference from procaine, tetracaine, butethamine and butacaine).

Prepare a test reagent by dissolving 7.0 Gm. of mercury in 10 cc. of nitric acid (specific gravity 1.4) and diluting the resulting solution with 20 cc. of water. Dissolve about 0.1 Gm. of lidocaine in 5 cc. of water and 1 cc. of

diluted nitric acid (10 per cent). Add 2 to 4 cc. of the test reagent and heat the mixture to boiling. The resulting solution may have a pale yellow to green color, but there should be no definite red or orange color (difference from anesthetics which are derivatives of p-aminobenzoic acid).

Other tests have been described (*N.N.R.* 1951, p. 575, 576).

Xylocaine Hydrochloride (Astra Pharmaceutical Products, Inc.): A brand of lidocaine hydrochloride.

Xylocaine HCl 1%, Epinephrine 1:100,000 (Astra Pharmaceutical Products, Inc.): Each cc. is stated to contain lidocaine HCl, 0.01 Gm.; epinephrine, 0.00001 Gm.; sodium chloride, 0.006 Gm.; sodium pyrosulfite, 0.0005 Gm.; methylparaben, 0.001 Gm., in water for injection. Marketed in 20 cc. vials.

Xylocaine HCl 2% (Astra Pharmaceutical Products, Inc.): Each cc. is stated to contain lidocaine HCl, 0.02 Gm.; sodium chloride, 0.006 Gm.; sodium pyrosulfite, 0.0005 Gm.; methylparaben, 0.001 Gm., in water for injection. Marketed in 1.8 cc. cartridges and in 20 cc. vials.

Xylocaine HCl 2%, Epinephrine 1:50,000 (Astra Pharmaceutical Products, Inc.): Each cc. is stated to contain lidocaine HCl, 0.02 Gm.; epinephrine, 0.00002 Gm.; sodium chloride, 0.006 Gm.; sodium pyrosulfite, 0.0005 Gm.; methylparaben, 0.001 Gm., in water for injection. Marketed in 1.8 cc. cartridges and in 20 cc. vials.

Xylocaine HCl 2%, Epinephrine 1:100,000 (Astra Pharmaceutical Products, Inc.): Each cc. is stated to contain lidocaine HCl, 0.02 Gm.; epinephrine, 0.00001 Gm.; sodium chloride, 0.006 Gm.; sodium pyrosulfite, 0.0005 Gm.; methylparaben, 0.001 Gm., in water for injection. Marketed in 1.8 cc. cartridges and in 20 cc. vials. U. S. Patent No. 2,441,498.

GROUP B

Listing of products in Group B means that there is insufficient evidence to justify their present acceptance, but there is reasonable evidence of their usefulness and safety. These products meet the other qualifications and standards established by the Council on Dental Therapeutics and the Bureau of Chemistry. It is the Council's opinion that Group B products may be promoted for special use and study.

The following additional products are classified in Group B:

Aureomycin Hydrochloride[1] (Crystalline) Dental Cones, 5 mg. (Lederle Laboratories Division, American Cyanamid Company): Stated to contain aureomycin hydrochloride crystalline powder and benzocaine powder in a base. (For report, see *J.A.D.A.* 42:65, Jan., 1951.)

Aureomycin Hydrochloride[1] (Crystalline) Dental Paste, 30 mg./Gm. (Lederle Laboratories Division, American Cyanamid Company): Stated to contain aureomycin hydrochloride crystalline powder in a flavored base. (For report, see *J.A.D.A.* 42:65, Jan., 1951.)

Aureomycin Hydrochloride[1] (Crystalline) Soluble Tablets, 50 mg. (Lederle Laboratories Division, American Cyanamid Company): Stated to contain aureomycin hydrochloride crystalline powder in a base. (For report, see *J.A.D.A.* 42: 65, Jan., 1951.)

GROUP C

Listing of products in Group C means that the evidence is so limited or inconclusive that the products cannot be accurately evaluated. It is the Council's opinion that Group C products require further study by qualified investigators.

GROUP D

Listing of products in Group D means that they are unacceptable because of their demonstrated inability to meet the standards outlined in the provisions for acceptance.

1. Patented. Patent No. 2,482,055. See A.D.R. ed. 16, p. iv.

COUNCIL ON LEGISLATION

Statement of the American Dental Association to the National Security Training Commission, August 16, 1951

The American Dental Association's recommendations with regard to the dental problems involved in the soon-to-be activated universal military training program were presented to the National Security Training Commission in Washington on August 16, 1951. Led by Rudolph H. Friedrich of Plainfield, N. J., chairman of the Council on Federal Dental Services, the group, which included Herbert B. Bain and Bernard J. Conway of the Central Office staff, presented a formal statement and answered questions during a 90 minute session. The Association recommended that an adequate pool of persons be deferred to permit the selection of dental students who would serve after graduation; that dental treatment programs be limited to such care as might be necessary to enable the trainees in the National Security Training Corps to carry out their duties and that postservice health benefits of a dental nature be limited. The group emphasized that members of the National Security Training Corps will be required to serve only six months.

The formal statement of the Association follows:

Mr. Chairman and Gentlemen of the Commission:

I am Dr. Rudolph H. Friedrich of Plainfield, New Jersey, and am here today to discuss with you, on behalf of the American Dental Association, some of the problems of a universal military training program as they affect dental health and the practice of dentistry. For the record I should state that I am chairman of the Council on Federal Dental Services of the Association and vice-chairman of its special committee on National Emergency Dental Service. With me are two staff members of the Association, Mr. Herbert B. Bain and Mr. Bernard J. Conway, who will assist in answering any questions the members of he Commission may desire to ask.

As we view the situation, a program of universal military training, as envisioned in Public Law 51, 82nd Congress, touches the practice of dentistry and the dental health of the prospective trainees at three major points. These are:

1. The reservoir of prospective dentists.
2. Dental services for trainees and use of dental manpower.
3. Posttraining liability of the Government for health care.

I shall discuss each of these in turn.

THE RESERVOIR OF PROSPECTIVE DENTISTS

The universal military training program proposes to induct into the National Security Training Corps all male residents of the United States at some time during their eighteenth year for a period of six months of basic military training. The Association's Bureau of Economic Research and Statistics calculates that this will provide an annual group of prospective inductees numbering slightly in excess of 1,000,000 persons in 1952 through 1957, with progressive increases to somewhere in excess of 1,500,000 at about 1964. The Association's Council on Dental Education states that of this number only slightly less than half will be high school graduates with a basic background that will permit them to seek college training without further preliminary training. From this latter group of approximately one-half million must come all of our future professional and scientific personnel. The number which can reasonably be expected to have the basic aptitudes to complete successfully a course of dental education is relatively small.

At present the dental schools in the country can accommodate about 3,300 students in the freshman class. The method of selection now in use, which includes a combination of

aptitude testing in 11 specific areas, past scholastic record and personal interviews by admitting authorities, guarantees a graduation class of about 3,000, the reduction in numbers resulting from about 5 per cent scholastic failures and 5 per cent from miscellaneous causes. The number of new dental graduates each year exceeds by about 1,250 the number of dentists lost by death or retirement.

Estimates appear to indicate that to obtain the necessary 3,300 for each year's freshman class at least 5,500 students must enter college two to three years before commencing the dental course. In the scholastic year 1950-51 about 11,000 persons applied for admission to the dental schools, 6,500 actually took the aptitude examination, and 3,300 have been certified for admission in the freshman dental class of 1951-52.

The Universal Military Training and Service Act provides in Section 6 a method for deferring from training in the Corps "persons whose activity in study, research, or . . . dental . . . endeavors" is found to be necessary to the national health, safety, or interest. It provides further for a method of postponing induction until the end of the scholastic year for certain college students in that the President by regulation may permit the further deferment of such students. In section 4 (i) (3) it is said that it is "the sense of Congress that the President shall provide for annual deferment from training and service of numbers of . . . predental students . . . at least equal to the numbers of . . . predental students in attendance at colleges and universities in the United States at the present levels (1950-51 scholastic year)."

The Association respectfully suggests that the Commission include in its report to the Congress a discussion of deferment policies, for, while the authority to promulgate deferment regulations is in the President and the jurisdiction to administer deferment procedures it in the Selective Service System, there are numerous ambiguities in those provisions of the act relating to deferment, and the administration of those provisions will affect the administration of the Corps.

With particular regard to dental and predental students, the Association recommends that attention be given to providing for the deferment from military training of a minimum of 5,500 persons annually who have graduated from high school. From this group eligible students may be identified later by the dental schools through a system of aptitude testing as being potentially capable of completing a dental education. Deferment is also recommended for those who are actually enrolled in dental schools, such deferment to continue in all instances so long as the deferred persons demonstrate satisfactory scholastic progress in the schools in which they are enrolled. The deferment of a predental student would be dependent upon his satisfactory pursuit of his predental education program and the continuing likelihood of his acceptance to a dental school class. The Association further proposes that a condition of deferment be a firm commitment that the deferred person, upon graduation, accept a commission in the Dental Reserve Corps of one of the Armed Forces, with liability for service, for a period equivalent to the basic training then required.

The Association makes this recommendation with regard to deferment for the following reasons:

1. Every registrant will in any event become liable to serve for eight years, seven and one-half of them in the reserves. The Armed Forces and the Corps will need a continuing supply of dentists. It would be more beneficial to the country to have prospective dentists serve later in their professional capacities than it would be to train them prior to their professional education as basic military trainees.

2. It is a well established fact that interruption of the course of study between college and high school will, in nearly all cases, diminish the capacity for scholastic application for at least a period of time after return to school. Further, during such period of interruption some will change their original educational objective and others will become discouraged because of an additional period of waiting, which may be as long as a year, before they can enter college after release to inactive duty in the Reserves.

In the selection of persons to be deferred for future training as dentists, the Association urges that the final selection of individuals for acceptance into dental training be made by the dental schools, subject of course to the right of local boards to refuse to grant a deferment for good and sufficient reason.

DENTAL SERVICES AND USE OF DENTAL MANPOWER

An extremely critical determination which must be made by the Commission is the nature of its recommendation to the Congress for measures relating to the health of members of the Corps. The decision arrived at on this subject will not only affect the type of dental treatment to be made available to trainees but will also determine the amount

of dental manpower available to the civilian population and the Armed Forces.

Earlier it was pointed out that the annual increment of trainees will be on the order of 1,000,000. The management of the dental problem will depend upon the type of treatment to be given and will be further conditioned upon the rate of enrollment of such trainees.

The problem will likewise be affected by the manner in which training is given. If each branch of the Armed Forces maintains a single training center for its allotment of trainees, it will probably be possible to provide health facilities for trainees separate from those maintained for other personnel on the base, and by providing a more limited type of dental treatment, to reduce the number of dental personnel required for the program. On the other hand, if small groups of trainees are sent to many places of training, their health problems may not be great enough to warrant the establishment of separate facilities from those maintained for the remainder of the base personnel. In this case it might be necessary to provide identical types of treatment for both members of the Corps and the Armed Forces with the consequent need for dental personnel at the ratio in effect for the Armed Forces.

It is difficult to forecast exactly the average dental condition of Corps members at the time of induction. Several studies made among groups of the population have produced different results for the age group comparable to those who will be inducted into the Corps. In 1949 freshman students at the University of Minnesota were found to have 1.9 untreated carious lesions. This study did not differentiate as to sex, nor did it include other forms of dental disorders. In 1940, a study of 18-19 year olds at Hagerstown, Md., indicated an average of 1.9 untreated carious lesions per person studied. A Navy study in 1942 among the 17-19 year old group indicated that 48.6 per cent needed one or more compound restorations, 75.5 per cent needed one or more simple restorations and 11.9 per cent needed one or more extractions. A study of 2,807 students in New Jersey, aged 17-19 indicated that 3.77 teeth per student needed filling or extraction. Similar studies have given other figures.

From these various studies it is possible to make the generalization, that is that it may reasonably be expected that any group of 18 year olds will require at least some dental treatment for a majority of its members.

For the purpose of classification of dental needs of individuals, the Armed Forces have developed a five-group division of mouth conditions. Under this system Class I needs no dental treatment; Class II requires routine but not early treatment; Class III must have early treatment; Class IV requires some form of prosthetic appliance, and Class V has emergency conditions requiring immediate treatment.

The Association would recommend that members of the Corps classified into Classes IV and V should under all circumstances receive the indicated treatment from time to time during the training period, to enable the individual to carry out his duties in the Corps without immediate danger to his health or acute discomfort to himself. The Association believes that the responsibility for dental care rests primarily with the individual. While many prospective members of the Corps will not have assumed and discharged this duty to themselves, the Association does not believe that the training period should develop into a program of Federal and State dentistry, nor that its health program should be aimed at complete rehabilitation of the oral health of the individual except where this procedure is essential to the effective execution of the mission of the Corps. The Association further believes that during his period of training the Corps member should be taught the principles of good dental health and that he should be encouraged to seek, upon his release, treatment to eliminate whatever dental defects he may still have.

The nature of the program itself provides reason for not offering a complete dental rehabilitation program. In the first place, the Corps members will be much too occupied with their general training duties during their limited period of service to permit time for extensive dental treatment; secondly, since they are not liable for overseas or combat service there is not the need to provide the same amount of treatment which the Armed Forces seek to give to personnel who may be sent to duty remote from available dental services.

Aside from the treatment aspects of the program, the Association believes that each inductee should be given a comprehensive dental examination of at least the type designated by the Armed Forces as Type II. The Association believes that this examination should be repeated immediately prior to release of the individual from the Corps and that these records, together with those of any dental operations performed during his tour of duty should be preserved for future reference.

The Association is concerned that a dental program adequate to protect and maintain the health of the trainees be maintained. It must, however, keep in mind the needs of the total

population. The ratio of dentists to population is about 1 to 1,733 and there are about 87,000 dentists in the United States. Of this number 44 per cent are over 50 years of age and may be considered as generally unavailable for direct military service, although possibly of use on a civilian basis. On the basis of a 5,000,000 man strength the military will require about 10,000 dentists. A 500,000 strength Corps, assuming that will be the average strength, using dentists at the same ratio as the Armed Forces, would divert another 1,000 dentists from the general population. It is thought that this is approaching the danger level in withdrawal of dentists from the civilian population, taking into account the increase in population over that of 1940. It is strongly recommended that no steps be taken which will withdraw an excessive number of dentists from the general civilian population.

This program will necessitate the employment of relatively large numbers of dentists to make the examinations at the time of classification and induction and subsequently, perhaps, to make periodic examinations of Reservists on active duty. The Association recommends that, wherever possible, either civilian dentists or Reserve officers be assigned on a day to day duty basis.

POSTTRAINING LIABILITY OF THE GOVERNMENT

What posttraining health benefits should be provided for those who will be called upon to serve in the National Security Training Corps presents a real problem. Under existing veterans laws, dental disorders are granted consideration only when they are service-connected, unless dental treatment is required as an adjunct to some other physical problem.

Several courses are open to the Commission: it may recommend that service-connected disabilities incurred in the Corps be granted the same consideration as are peacetime service-connected disabilities of the military; it may take the viewpoint, formerly applied to Reservists on temporary active duty, that such disabilities should be treated under the provisions of the Federal Employees' Compensation Act; it may produce an entirely new concept of compensation or treatment program for such disabilities; or it may decide that no after-treatment should be provided for those who serve in the Corps.

From the broad philosophical viewpoint, it is apparent that the service to be performed will be universal with regard to the numbers who will be involved. Those who serve will be performing an obligation of citizenship which demands no return from the general community which is the Federal government. Examined from the humanitarian viewpoint, certain of those who serve will incur disease or disability to which they would not have been exposed had they not been called to service. For these there should be provided at least that type of health service which will restore them to their former condition so far as it is possible to do so. But with specific reference to the dental aspects of the problem it is difficult to believe that dental treatment will be required based upon oral disorders which might have arisen in a six months' period of service. This, of course, does not apply to traumatic injuries which can be clearly attributed to service.

At the present time the laws relating to veterans provide them with the right to dental care where the oral disorder is adjudicated to be service-connected. In practice this benefit now goes far beyond treatment of the individual condition. For example, if one tooth is determined to be service-connected, it can be treated. If subsequently it needs further attention dental services are available for this purpose also. If ultimately it must be extracted the veteran is entitled to a replacement. If at a later date the adjoining teeth are affected, these are also considered as service-connected and entitled to treatment. So the process goes until finally, by extension of the principle of service connection, the veteran becomes entitled to a full denture. This type of extension of treatment should not be permitted to enter the problem of post-service care for members of the Corps.

The Federal Employees' Compensation Act appears to offer a more realistic approach to the matter in that it provides for such services as are needed to remedy the injury but it does not offer continuing treatment after the original injury is corrected.

The American Dental Association recommends that only minimum benefits be offered in the way of dental treatment to those persons who have completed their training under this Act. It would further suggest that such treatment be predicated only upon clear and convincing evidence that the dental condition was not present at the time of entry into service, that it actually occurred during the period of service, and that it was not treated or completely corrected during the service.

SUMMARY

To summarize, the American Dental Association recommends to the National Security Training Commission:

1. That an adequate pool of persons be deferred in order to provide a continuing flow of students to the dental schools and that such deferment be conditioned upon a period of service as a dental officer, after graduation, equivalent at least to the period of basic training required of those not so deferred.

2. That a complete dental examination, with bitewing roentgenograms, be given to each person at the time of induction and again at the time of release and that during the period of training only such dental treatment be provided as is necessary to enable the trainee properly to carry out his duties and that insofar as possible these examinations at time of induction be given by civilian dentists or Reserve officers on day to day duty assignments.

3. That persons who have served in the Corps be granted a right to such dental treatment, after release from the Corps, as can be conclusively demonstrated to be necessary to correct a dental disorder which arose after induction and prior to discharge and which was not treated or corrected prior to the time of discharge. This corrective service should fulfill the Government's responsibility to the Corps member when made.

The Association wishes to thank the Commission for this opportunity to present its views with regard to the dental problems involved in the universal military training program and to assure the Commission that its resources and personnel will always be available to assist the Commission in any manner possible.

The Army Dental Bill

The purpose of this report is to discuss the Army Dental Bill sponsored by the American Dental Association, to review its history and to point out the factors which, to date, have prevented it from becoming law.

There are presently pending before the Armed Services Committees of the two houses of Congress identical bills drafted by the Association and introduced as S. 1306 by Senator Lester C. Hunt (D. Wyo.), H.R. 164 by Representative Walter E. Brehm (R. Ohio), and H.R. 344 by Representative L. Mendel Rivers (D. S.C.). If enacted in their present form these bills would:

1. Designate the chief dental officer of the Army as "Chief of the Dental Corps" and make him responsible to the Surgeon General and the Secretary of the Army for making recommendations concerning dental health of the Army.

2. Change the name of the Army Medical Service (the formal title of the Surgeon General's department) to "Army Health Service."

3. Establish a dental officer personnel strength, by law, at a ratio of "approximately two dental officers for each thousand personnel on active duty."

4. Require the training of enlisted personnel in duties "ancillary or auxiliary to dentistry" and the assignment of enlisted personnel so trained to duty with the dental corps in effective numbers.

5. Require the Secretary of the Army to vest in the Chief of the Dental Corps the authority to establish standards for dental practice; conduct inspections and surveys; initiate and recommend personnel actions affecting members of the dental corps and assigned auxiliary personnel; serve as the dental adviser to the Army Health Service.

6. Cause the organization of the dental service at subordinate levels so that the senior dental officer of each command would be directly responsible to the commanding officer for all professional, technical and administrative matters relating to the dental health of the

command, including the assignment or detailing of dental officers and attached enlisted personnel within the limits of the command.

Shortly after World War II caused the entry of thousands of dentists into the Army and Navy, the Association began to receive complaints about the subordination of the dental service to the medical service and also about the general organization pattern for dentistry in the services. Prolonged discussions between representatives of the Association and the services were held from 1942 to 1945. As a result of these discussions the Army amended its regulations as they applied to the dental service, but subsequently amended them again so as to make them unacceptable.

The returning veterans took their complaints to the House of Delegates of the Association and a Committee on Military Affairs was formed. This Committee recommended complete separation of the Army medical and dental corps. Opposition to this procedure arose within the Association and a formula was finally agreed on which was termed "administrative parity"; that is, the Association should seek to have a self-contained dental corps operating under the Surgeon General but not subordinate to medical officers except where they happened to be in command.

In the 79th Congress (1945) bills were introduced to accomplish this general objective for both the Army and the Navy. The Navy bill was enacted into law but the Army bill was not. The Army bill was sponsored by Representative (now Senator) John J. Sparkman of Alabama. When the 80th Congress convened in 1947 revised versions of the Army bill were introduced by Representative Rivers of South Carolina, who had successfully sponsored the Navy Dental Bill in the preceding Congress, and Representative Brehm of Ohio, a dentist. These bills did not come to hearing during the 80th Congress.

When the 81st Congress convened the Council on Legislation redrafted the bill in an effort to meet known Army objections. Senator Hunt, a dentist, sponsored one bill in the Senate and Representatives Brehm and Rivers sponsored two identical measures in the House. Arrangements were made during the first session (1949) for hearings in both Houses and the Association offered four witnesses in two all-day hearings. The Department of the Army objected strongly to the pattern of the bill, contending that it would give greater authority to the Chief Dental Officer than was granted to either the Surgeon General or the Secretary of the Army. They argued that a bill to reorganize the entire Army administrative pattern was then being drafted and that nothing should be done until that bill had been considered by the Congress.

The Senate Committee, after hearings, decided on a compromise measure. This was introduced by Senator Hunt on August 4, 1949, and was enacted by the Senate on August 9. The House of Representatives took no action during the remainder of the first session of Congress either on the original Rivers version of the bill, on which hearings had been held, or on the revised text as passed by the Senate.

When the second session of the 81st Congress convened in 1950, Chairman E. Harold Gale of the Council on Legislation called on Congressman Carl Vinson (D. Ga.), chairman of the House Armed Services Committee, and obtained a promise that hearings would be held before the adjournment of the 81st Congress. Congressman Vinson referred the bill to a sub-committee headed by Representative Overton Brooks (D. La.), and wrote a letter directing that an early hearing be held. The sub-committee scheduled a hearing for February 15, 1950, and the Association arranged for a group of witnesses, some from as far away as California. The testimony was

prepared and the Association was ready for the hearing when the Armed Services Committee, on February 9, postponed the hearing indefinitely without explanation.

Thereafter repeated efforts were made to obtain a new hearing date. Not only did members of the Council on Legislation see the sponsor and the chairman of the sub-committee, but active cooperation from the dentists in their home districts and states made all concerned aware of the Association's demands. The sub-committee chairman was willing to set the date but he explained that the sponsor, Representative Rivers, was to be absent most of the spring on investigation trips for the Committee and that the hearing could not be held until the sponsor was available.

Representative Rivers was available in late May, but both he and Chairman Brooks then advised the Council that the full Committee did not intend to report any further bills since the Congress was to adjourn July 1, 1950. The Association could have the hearing but no action would be taken on it. Naturally the Council refused to spend a large amount of Association money to no purpose.

Two events occurred shortly thereafter which further complicated matters: first, the Korean incident started on June 25 and the Armed Services Committee, instead of adjourning, busied itself with matters relating to that event; second, the Army Organization Bill became law and made so many changes in the pattern of the Army that it was necessary to make a complete redraft of the bill to meet the changed conditions.

In the meantime the Air Force Medical Service had been separated from the Army. Consequently, the Council decided to concentrate on the Army problem. The redrafted bills were introduced in the Senate on September 4, 1950, and in the House on September 18. Efforts were made until the adjournment of Congress on January 2, 1951, to get the Armed Services Committee to act on the new draft, the Council proposing that it be substituted for the bill which had passed the Senate and was still alive. With the adjournment of Congress, the bills died and the Council had to start over.

Not discouraged, the Council caused the bill as outlined here to be reintroduced into the Senate and House on the opening day of the new Congress. Since that time the Council has exerted every effort to obtain new hearings in both the Senate and the House. The Department of the Army, as was expected, objected to the new version once more, even though it had been drafted to meet the objections made to the earlier drafts.

Senator Hunt has advised the Council that he believes the bill can be enacted in the Senate without further hearings in spite of the objections of the Department of the Army. Representative Rivers has promised to try to secure the assignment of the bill to a sub-committee of which he is chairman and to arrange for hearings as soon as time permits. The Council on Legislation has written to every dentist in Georgia, South Carolina and Louisiana, the home states of Congressmen Vinson, Rivers and Brooks, and to the liaison dentist for every member of the Armed Services Committee. Many of these dentists have written to their Congressmen and asked for early action on the bill.

Although the Council cannot guarantee enactment of the bill at this session, it can assure the membership that no stone will be left unturned until the position of dentists in the Army is made secure by law instead of by regulation.

W. R. Alstadt

COUNCIL ON DENTAL HEALTH

Dental administration in state health departments: report of 1951 conference

The Board of Trustees of the American Dental Association authorized the Council on Dental Health to conduct a conference with key persons who are concerned with the problem of health department administration. The conference was held at the Central Office, July 13, 1951.

In addition to members of the Council and of the Central Office staff, participants were Frank A. Bull, Madison, Wis., director of dental health, Wisconsin State Board of Health; Mr. Paul E. Fox, Washington, D.C., public health adviser of the U.S. Public Health Service; Roscoe P. Kandle, New York, field director of the American Public Health Association; John W. Knutson, Washington, D.C., chief of the Division of Dental Public Health, U.S. Public Health Service; Edward G. McGavran, Chapel Hill, N.C., dean of the School of Public Health, University of North Carolina; John D. Porterfield, Columbus, Ohio, director of the Ohio State Health Department and secretary-treasurer of the Association of State and Territorial Health Officers; and Mr. Harry L. Wylie, Chicago, management consultant and professor of management, School of Commerce, Northwestern University. Harold Hillenbrand, secretary of the American Dental Association, served as the conference chairman.

PROBLEM OF SECURING ADMINISTRATIVE STATUS

The conference on health department administration was an important step in carrying out the directive of the 1950 House of Delegates. The wishes of the House were expressed in a resolution directing appropriate officers of the Association to assist constituent dental societies in securing satisfactory administrative status for the respective dental units in state health departments. The problem now confronting an increasing number of state dental societies was described in a Council report entitled "Dental Administration in State Health Departments."[1] Following is an abstract of the problem as set forth in the report:

> There is presently a trend in state health department organization to limit the number of subordinates reporting directly to the state health officer, primarily for purposes of improving economy and efficiency. This reorganizational pattern largely is the result of surveys of state health departments conducted by representative advisers of the U.S. Public Health Service, and consultants from schools of public health. In several instances, the recommendations have resulted in lowering the administrative position of the dental unit from one directly under the state health officer to one responsible to an intermediary division or bureau.

Actually the problem of a major divisional status for state dental units is twofold. As stated above, present reorganization plans include a lowering of status for some state dental units. In addition, approximately half of the state dental units never have achieved a satisfactory administrative status.

For many years the dental profession, through state dental societies and official actions of the American Dental Associa-

1. Council on Dental Health. Dental administration in state health departments. J.A.D.A. 43:61 (July) 1951.

tion, has demonstrated active interest in the promotion of sound dental health programs by the establishment of dental divisions within state health departments. The program of the Association is based on community determination of needs and activities but also recognizes the important roles of state and national health agencies. The official statement of the Association with regard to dental programs, as stated in the booklet entitled *A Dental Health Program for the Community, State, and Nation,* follows:

> Each of the states should be urged to establish a division of dental health within the department of health and the administration of the dental program should be in the hands of a qualified dental officer who is directly responsible to the state health officer.

The official policies expressed in the booklet demonstrate that the Association is concerned not only with dental health but also with the over-all health problems of the nation. Other examples of the Association's efforts to improve public health are the numerous appearances of Association representatives before Congressional committees in support of many public health measures, including the Local Health Units Act of 1951.

PURPOSE OF THE CONFERENCE

The fact that the Association recognizes that there are many facets to the problem of improving the dental health of the public aided in the establishment of the purpose of the conference. One of the facets is the need for facilitating work in the field of public health. Since so much of the dental public health effort is carried on through the dental unit in the state health department, the Association believes that the administrative position of the dental unit is extremely important. The dental unit should occupy an administrative position that will permit the dental director to conduct an effective program within the over-all framework of the health department and with due regard for the size and scope of the dental problem.

Therefore, the four immediate objectives of the conference were: (1) To promote an understanding of the objectives of the Association in regard to the administrative status of dental units. (2) To define more clearly the points of agreement and disagreement in regard to the administrative status of the dental unit. (3) To secure the advice of experts in the field of public health administration. (4) To provide an opportunity for an informal discussion of the problems involved in establishing an efficacious administrative position for the dental unit.

THE CONFERENCE AGENDA

The increase in attention being given to the problem of the administrative status of dental units is largely due to the reorganization surveys now being conducted in many state health departments. In order to discuss intelligently the position that the dental unit should occupy, first consideration was given to reorganization surveys—why they are being made, how they are conducted, and how the results are implemented. The second main topic was concerned with general principles of organization and how these principles are applied to health department administration. Following consideration of surveys and principles involved, the remainder of the conference was directed to the interpretation of organization principles in terms of the position that the dental unit should occupy, and a discussion of the pertinent points of view of the various conference participants.

REORGANIZATION SURVEYS

Because of the rapid growth of the public health field during the last several years, the administrative patterns of some health departments have developed a somewhat haphazard appearance. As

each new activity was vested in the health department, a new unit was created, until a large number of divisions were reporting direct to one individual, the state health officer. The need for reorganization in many states is obvious, and representatives of the American Public Health Association, the U.S. Public Health Service, advisers from schools of public health, and others have lent their assistance. The problem is one of reorganizing the various activities that lend themselves to a better administration.

When a survey of a state health department is contemplated, a surveyor, or team of surveyors, is invited by the state health director from one of the above mentioned agencies. An advisory committee to the survey team, usually made up of representatives of various health organizations within the state, is appointed. In Missouri, for instance, the advisory committee consisted of members of the State Health Council, which in this instance did not have dental representation.

During the conference discussion it was pointed out that the surveyors have not made a practice of consulting with dental authorities regarding the functions and administrative status of the dental unit. Conference participants agreed that the dental profession should be represented on the advisory committees.

The survey usually consists of evaluation of the activities of each unit of the state health department. Recommendations are made as to the place the respective units should assume in the organizational pattern, whether new units should be established and whether some units should be combined. Recommendations also are made as to how the services can be improved.

Recommendations resulting from the survey are implemented in one of three ways. In most instances the health officer simply announces that the department will be reorganized as of a certain date. In other instances the action is taken by the governing body of the health department or the legislature. In the past, the state dental director and the state dental society frequently have not learned about the reorganization plans until after final decisions had been made.

PRINCIPLES OF ORGANIZATION

There are several principles that apply to organization, and some of these apply with particular aptness to state health departments.

Principles of organization are based on a recognition of what is commonly known as the "human equation." This term is defined by Webster as "the factor of human strength or weakness that needs to be considered in predicting the outcome of any social . . . process operated by human agency." In recognition of this factor, it has been pointed out that it is practically impossible for one person with a specialized training and interest to supervise adequately and be directly responsible for the development and guidance of another specialized interest.

In industry the term "specialization" refers to the assumption of responsibilities that require a distinct and separate formal educational prerequisite and training. A chief engineer, for example, should not supervise accounting. Engineering and accounting are specialties. When the two services are required in order to accomplish an objective, one service is bound to suffer by combined supervision.

The principle of organization that best covers the situation states that each division or major unit of an organization should represent a field of specialty or should cover a field of activity sufficiently large in scope to require separate and direct representation to top management. Simplification of the organization plan may then be accomplished by establishing separate categories for those allied serv-

ices that are required by or are similar to the specialized service.

Another principle, referred to as the "span of control," limits the number of persons who report to an administrative officer. The span of control defines the limits of the administrative and directive capacity of an officer according to his training and experience, his physical capacity, the time available and the distances to be covered. Organization experts do not agree on the maximum number of subordinates that top management can supervise, but it is generally agreed that the number should vary between six to ten subordinates, depending on the manager to whom they report. The principle may be misinterpreted, however, and so much attention may be given to a theoretical concept of a specific number of units into which all activities must fall that the entire organization may suffer.

The third principle that applies to the problem is that the lines of accountability or responsibility must be clearly defined. Although lines of communication do not necessarily follow lines of authority, when major issues are considered the lines do parallel one another. In a well run organization, communication between various divisions is relatively free flowing. Dentistry's concern is that subdivisional status places the dental director in a position where he is unable to participate routinely in planning with major division chiefs and the health officer.

Surveyors have applied these principles of organization, particularly the principle of span of control, to state health departments, and the major affairs of the department have been divided into three broad categories. The first category, designated "central administration," includes such fields as health education, statistics, fiscal affairs and personnel. The second category is concerned with environmental health and includes water and milk sanitation, sewage disposal and housing. The third category is concerned with the biologic aspects of public health, such as disease control and services for groups of people; for example, maternal and child care, and industrial health. The dental program generally is included in the third category as a disease control unit.

ADDITIONAL POINTS EMPHASIZED DURING DISCUSSION

Six points, which relate to the importance of a specified organizational pattern and the status of the dental unit within it, were emphasized during the general discussion:

1. Many Disciplines Involved • Public health is a specialized health service concerned with the health of groups of people rather than of individuals. A health department is composed of a team of professional people, including dentists, physicians, engineers, educators, nurses, nutritionists and others, and should not be dominated by any one professional group. By tradition, however, physicians always have predominated in the field of public health administration and physician health officers frequently consider dentistry a medical specialty. Association representatives pointed out that if the term "medicine" is considered to mean the practice of physicians, dentistry cannot be considered a specialty of *medicine,* although it is a specialized *health* service. Because public health work is based on the team concept, each discipline, in terms of separate schools, qualifications, license boards and responsibilities, should have parity with all other disciplines that are part of the team.

2. More Comprehensive Training • Since physicians do predominate in the field of public health administration and probably will continue to do so for some time, conference participants pointed out the need for more comprehensive dental health training in schools of public health

for physicians and other public health workers. Present curriculum schedules of schools of public health include many hours of instruction relative to such subjects as nutrition, environmental sanitation, laboratory procedures and vital statistics, with little, if any, instruction in dental public health.

Anyone in an administrative position responsible for a dental program must have a basic knowledge of and appreciation for dental public health problems if he is to justify dental budgets, make positive and earnest recommendations regarding dental health programs, and interpret fully the dental health program. Without training in dental public health, the interpretation of the dental program might suffer from unconscious or intentional bias because of basic training in another field and consequent lack of understanding.

3. Participation in Planning • There is hardly a program in the health department that is not in some way influenced by or dependent on the activities of at least one other program within the department. Each unit needs sufficient administrative freedom to allow it to integrate its program with the programs of other units. Because of the nature of the dental program, such integration is particularly important for the dental unit, and the conference recommended that the dental director should be in a position to participate routinely in the major planning activities of the health department.

4. Administrative Levels • Conference participants agreed that the dental profession should have parity with other professions in attaining top echelon positions in the state health department. However, some changes will be necessary before blocks in the way of achieving this objective are removed. Present state laws rarely permit a dentist to assume the top level administrative position, and specifications even now being written by national consultants in the public health field require that the public health administrator be a graduate of an approved school of medicine and licensed to practice medicine or eligible for license in the respective state. Also, by practice, top level positions are almost always assumed by physicians and, occasionally, by engineers or professional administrators. Association representatives pointed out that dentistry does not particularly aspire to health department directorship but does seek an administrative position and salary potential commensurate with professional specialization and the size and scope of the dental health problem.

5. Salary Parity • A survey recently conducted by the Association showed that only 11 states have dentists with the same potential salary range as physicians.[1] Conference participants unanimously agreed that this situation should be corrected.

6. Effective Organizational Structure • Several times during the conference it was emphasized that an organizational structure on paper will not in itself mean a better program, but that an effective over-all program is dependent on a team approach by all participating personnel. Also, an organizational pattern that causes friction among the respective units cannot produce desired results. New organizational patterns cannot be effective if established without a recognition of the human equation and the professional disciplines involved. There must also be an acknowledgment of the fact that a functioning program cannot immediately be superimposed on an idealistic or theoretical arrangement.

SUMMARY

Following the thorough review of the problem, Dr. Kandle presented several summarizing remarks. Mr. Fox, Dr. Mc-

Gavran and Dr. Porterfield generally concurred in these remarks and made a few additional comments. The augmented summary in brief follows:

1. Dental disease is a major public health problem, and the dental program should have parity with other major disease control activities.

2. The dental director should have direct access to the state health officer on all matters of dental policy.

3. The dental director should have salary parity with other program directors.

4. The dental director should take part in major planning activities through participation in staff meetings.

5. The dental unit should have an advisory council made up of members of the dental profession and the public.

6. The dental public health activities should be a part of the total public health program and should be a major concern of the health officer.

7. The dental profession should have parity with other professions in attaining top echelon positions in the state health department.

8. The dental profession should be represented on advisory committees in connection with surveys of state health department organization.

9. Schools of public health should provide members of all professional groups with more extensive training in dental public health.

10. Dental societies should not restrict their interest to the administrative status of the dental unit but should also be concerned with the continued improvement of the total program of the health department.

11. The necessity for assistant health officers in large units must be recognized.

12. It would not be good policy for a specified status for the dental unit to be secured through legislation.

COMMENTS

All participants were of the opinion that the conference provided an opportunity for better understanding of the problems involved in organization of state health departments. More and more health departments throughout the country will be visited by survey teams for the purpose of studying their organizational structure. The Association's representatives have given assurance that the Association and its constituent societies will welcome the opportunity to provide consultation service on dental health matters in general and on the administrative structure of the state health department in the respective states.

Three points were not clarified to the complete satisfaction of all conference participants:

1. Without specific reference to administrative structure, it was stated that the dental program should have parity with other major disease control activities. In most instances, reorganization plans have placed all major disease control activities in one over-all division, generally termed a "division of preventable diseases." Even though under such an arrangement the dental unit is on a par with other disease control activities, the dental unit would not necessarily report directly to the state health officer. However, other points in the summary would seem to preclude any intent other than that the dental unit should report directly to the state health officer.

2. There is a possibility of some ambiguity in the statement that large state health departments may require assistant state health officers. If the assistant health officer has administrative responsibility for a specific number of units including the dental unit, he may assume an intermediary position between the dental director and the chief administrator, a position contrary to Association policy. If the assistant health officer functions

solely as an assistant to the chief administrator and not as an intermediary deputy, then the dental director more likely will be directly responsible to the chief administrator.

3. It was agreed that a legislative solution to the problem of the administrative status of the dental unit is not desirable as a first choice, but the Association's representatives have pointed out that such action may be necessary if consultation and mediation with the dental profession are refused. Following a survey and downgrading of the dental unit in Illinois, the dental profession demanded mediation, which finally resulted in restoration of a major administrative position for the dental unit. The dental profession in California, however, found it necessary to introduce legislation which, when enacted, specified a major unit for dentistry.

During the conference, Council members reemphasized the fact that for many years the dental profession in this country has promoted a program for the improvement of public health. The profession has recognized as part of its constructive approach to the problem the vital role of the dental unit in the state health department. The conference provided an opportunity to point out that an effective dental unit is dependent on an efficacious administrative position.

W. Philip Phair, D.D.S.
Assistant Secretary

COUNCIL ON DENTAL RESEARCH

Products added to A.D.A. List of Certified Dental Materials

Since the publication of the most recently revised List of Certified Dental Materials (J.A.D.A. 43:78, July 1951) the following materials have been added:

CERTIFIED AMALGAM ALLOYS (A.D.A. SPECIFICATION NO. 1)

Alloy	*Manufacturer or Distributor*
Ultra Brand	H. Jelinek

CERTIFIED INLAY CASTING GOLD ALLOYS (A.D.A. SPECIFICATION NO. 5)

TYPE A, SOFT

Alloy	*Manufacturer or Distributor*
Light Inlay	Benjamin R. Leff

TYPE B, MEDIUM

Alloy	*Manufacturer or Distributor*
Aleco No. 2	A. L. Engelhardt Company
Medium Soft	Benjamin R. Leff

TYPE C, HARD

Alloy	*Manufacturer or Distributor*
C	John Luft Prescription Alloys
C Gold	Benjamin R. Leff
Spyco Hard	Spyco Smelting and Refining Company

LON W. MORREY, D.D.S., EDITOR

OCTOBER 1951

VOLUME 43 • NUMBER 4

Published by the American Dental Association
222 East Superior Street • Chicago 11, Illinois

THE Journal OF THE AMERICAN DENTAL ASSOCIATION

Editorials

Compulsory old age and survivors insurance versus a voluntary pension program for dentists

One of the many important matters to be considered by the House of Delegates at the ninety-second annual session of the Association this month is the desirability of requesting the inclusion of dentists in the Old Age and Survivors Insurance program of the National Social Security Act. Until recently there seemed to be no middle course with regard to this question; one had to be for or against it, or indifferent, depending on his philosophic viewpoint. Now a new plan is proposed which, by amending the Federal Internal Revenue Act, may partially solve the problem. An open hearing on this plan as well as on the proposal to include dentists in the OASI will be held by a special reference committee of the House of Delegates on Tuesday, October 16, in the Hotel Statler, Washington, D. C. Interested members are urgently invited to attend.

The new plan is proposed by Representatives Frederic S. Coudert, Jr. (R., N. Y.), Eugene J. Keogh (D., N. Y.) and Daniel A. Reed (R., N. Y.) and Senator Irving M. Ives (R., N. Y.). They have introduced bills in Congress which would amend the Federal Internal Revenue Act so that the self-employed and salaried persons could have the opportunity of setting aside voluntarily, prior to payment of Federal income taxes, a portion of annual earnings in a special account from which withdrawals could be made at age 60.

The question as to whether dentists should participate in the OASI has been considered by the House of Delegates intermittently for more than 10 years. Because

the problem is so intimately tied in with National compulsory health insurance, to which the Association is opposed, it has found small favor with most men in the profession. At one time, in 1948, the delegates did vote in favor of the proposal but further study of the entire social security structure prompted them to reverse their decision and to direct the Council on Legislation to oppose all plans to extend Old Age and Survivors Insurance to include dentists in private practice.

As with all problems affecting the social order this problem has many sides. Oversimplification may reduce them to two: (1) Should a dentist be solely responsible for his economic security or should part of that responsibility be shared by society? (2) Should participation in a Federal insurance program be on a compulsory or voluntary basis? A categorical yes or no to these questions may perhaps be obviated by the adoption by Congress of the proposal presented by the four Congressmen from New York state.

Details of their proposal, including information on premiums, methods of payment and benefits, are described in the September 1951 issue of THE JOURNAL[1] and in a special issue of the Association's *Information Bulletin* mailed members early in September. A special report on the National Social Security Act, with particular reference to OASI, was sent members on August 1.

Each member should read these reports carefully and weigh the advantages and disadvantages of both plans. He should keep in mind that the Association is on record as opposing the extension of OASI to include the self-employed and that it is on record as approving the adoption of amendments to the Federal Internal Revenue Act which would give the private practitioner of dentistry the same opportunity available to the corporate employee to provide voluntarily for his own future. Then, after careful study, he should voice his opinion to the delegates from his district who will participate in the deliberations of the House at the Washington, D. C., meeting. Finally, those members who attend the ninety-second annual session should attend the meeting of the special reference committee on October 16 and give the members of that committee the value of their opinions.

1. J.A.D.A. 43:368 (Sept.) 1951.

Color television at the ninety-second annual session of the Association

Color television will play a prominent part in the scientific program of the Association at its annual session in Washington, D. C., October 15-18.

Ten television receiving sets located in the National Guard Armory will project views of operations performed several miles away at the Mount Alto Veterans Administration Hospital. Twenty-four subjects have been scheduled for telecasting by the subcommittee on television clinics of which Lester W. Burket is chairman. These subjects, ranging from cavity preparation for amalgam fillings to excision of precancerous and cancerous lesions of the mouth, will be presented during the morning

and afternoon meetings, Tuesday through Thursday, October 15-18. The complete program is published on pages 333 and 334 of the September issue of THE JOURNAL. Attendance necessarily will be limited since the 10 receiving sets will accommodate an audience of only 400 at each period. A member may obtain his admission ticket by presenting his current membership card.

Color television is so new and its use as yet so limited geographically that its novelty alone will attract a large audience. Its novelty, however, is incidental. Its principal and most practical feature is that it enables a relatively large audience to witness delicate and intricate operations far better than if the observers were in the operating room itself.

A few years hence color television will be commonplace. It will be used routinely in all dental and other teaching institutions. Now it is new. The Association, ever ready to further dental education, welcomes the opportunity of utilizing this latest medium of communication for the benefit of the profession and the public.

Scientific methods and pocket-size journalism

One of the pocket-size dental publications,[1] with true journalistic enterprise, rushed to the rescue of the focus of infection theory by printing, in its September issue, three interesting, if not scientific, criticisms of "An Evaluation of the Effect of Dental Foci of Infection on Health,"[2] published in the June 1951 issue of THE JOURNAL. Using the well known, time worn testimonial technic, a favorite practice of the magazine cited, the authors of the articles and the publisher contribute another dubious chapter to the volume of questionable evidence which, for a quarter of a century, has influenced the opinion and practices of members of the health professions as those practices concern the etiologic significance of focal infection to systemic disease.

Testimonials often are interesting and their use strangely effective even among those educated in science. A legislator[3] in Louisiana recently learned that lesson well and made a fortune from it.

1. Oral Hygiene.
2. J.A.D.A. 42:610-697 (June) 1951.
3. Hadacol Company reportedly sold recently for $8,200,000. Time 58:88 (Sept. 10) 1951.

Washington News Letter

Congress will have adjourned for the year, barring unforeseen delay, by the time the Association convenes here in October. Although most of the senators and representatives will be home or homeward bound, the Government's Executive Branch will be doing "business as usual" and the numerous divisions engaged in dental affairs are polishing up their welcome doormats in anticipation of playing office host to conventionnaires.

The military services are preparing themselves to answer questions about dental officer procurement, research and education, as well as to discuss sundry other problems of interest to the profession generally. Dental leaders of U. S. Public Health Service will be ready to furnish up-to-date information, particularly on the progress of community water fluoridation and other public health aspects.

VETERANS' ADMINISTRATION

Quite possibly the lion's share of attention will be attracted by Veterans' Administration and its burgeoning dental program, since it is not only the largest under one roof, so to speak, but also the most important one as far as participation by non-Federal practitioners is concerned. In the three years since Bion R. East left a deanship at Columbia University to take charge, VA's dental department has made great strides in providing outpatient care to eligible beneficiaries, elevating professional standards and promoting research.

For the current fiscal year, which ends June 30, 1952, VA will have in excess of $32,000,000 available for financing of outpatient dental examinations and treatment. Of this amount, $10,000,000 is earmarked for commitment during the current quarter, and the annual sum is approximately 30 per cent greater than that allocated last year. As a result of having more ample funds, coincident with a slight but noticeable decline in applications for "home town" dental care, Dr. East believes that the backlog of applications will be virtually dissolved by the end of this year.

Currently the backlog is in the neighborhood of 170,000 applications, representing a reduction of nearly 50 per cent from the peak figure in 1950. New applications for examination and treatment are coming in at the rate of about 50,000 monthly and approximately 60 per cent are adjudicated service-connected and therefore eligible for Government dental care. Cost of treatment averages $95 per case; examinations, $13.

Placed under way only in the last few weeks was the residency and intern training program, launched on a pilot basis in the Milwaukee and Buffalo VA hospitals. Each of these institutions is taking one resident in oral surgery and one intern (rotating) this year. Eighteen of the 150 VA hospitals now have dental representation on the deans' committees which supervise their professional policies and procedures, which would indicate that groundwork has been laid for marked expansion of postgraduate dental training by VA personnel.

Another important milestone is the fact that where, as recently as 1949, the VA dental service had no consultants, today it has some 400 affiliated with hospitals and regional centers.

Personnel changes on Dr. East's staff, announced in September, are directly related to program expansion. Jacob Wisan, at present chief of the dental service at Brooklyn VA hospital, will report to central office here in November for temporary duty pending his assumption of the directorship of the new dental training center in Chicago. Completion of this project is scheduled for next July. It will be affiliated with the University of Illinois dental school.

John E. Fauber, assistant to Dr. East, has been relieved from that assignment and sent to Johns Hopkins University School of Public Health and Hygiene to take a one-year course in public health administration. His place is being taken by J. J. Heniker, formerly chief of the division of dental professional services. S. A. Pyfrin will succeed him, in an acting capacity.

WATER FLUORIDATION

Further impetus to fluoridation of community water supplies was given late in August when Office of Price Stabilization granted higher price ceilings to manufacturers of sodium silicofluoride. Under the new regulations, the per-pound price ranges from seven to nine cents, depending on quantity purchased and the manner in which it is packaged at the plant.

"Sodium silicofluoride has gained in importance recently," said the OPS order, in

part, "because of the large growth in water fluoridation programs embarked upon by public authorities. Water fluoridation as a method of arresting tooth decay is approved and promoted by the U. S. Public Health Service and is recommended by the American Dental Association.

"Sodium silicofluoride is the preferred and most economical chemical for water fluoridation purposes, and the increase in water fluoridation programs has made an increase in production essential. Information received from the U. S. Public Health Service shows that the failure to expand production of sodium silicofluoride is a deterrent to the expansion of the water fluoridation programs."

According to USPHS figures, 105 communities throughout the country—one-half of them in Wisconsin—are now fluoridating their water and a similar number have approved introduction of the plan. Wisconsin towns account for one-third of the latter group.

How fluoridation has developed in this country during the past decade was described to the Mexican Dental Association, at its First National Congress in late September, by Bruce D. Forsyth, assistant surgeon general and chief dental officer of U. S. Public Health Service. One of the points he stressed was that its utilization is a preventive—not a therapeutic—measure. "It is not correct," he said, "to refer to fluoridation as mass medication. Medication implies the use of drugs to treat or cure a disease."

USPHS PROMOTIONS

Along with those of Robert H. Moore, John W. Knutson and Ralph S. Lloyd, the name of Dr. Forsyth was sent to the Senate by the White House on September 10 for promotion to the rank of dental director, which corresponds to a colonelcy in the Army. Actually nine additional career dental officers in USPHS are qualified and eligible for promotion to the same rank but a shortage of position vacancies precluded their nomination for promotion.

SOCIAL SECURITY TO BE BIG ISSUE AT ANNUAL MEETING: OPPICE NAMES REFERENCE COMMITTEE APPOINTEES

As plans were completed for the ninety-second annual session of the Association in Washington, October 15-18, members were busy studying the pros and cons of the most critical issue to be decided by the House of Delegates—the question of whether dentists should be included in Federal Old Age and Survivors Insurance.

Present stand of the Association, as voted by the House of Delegates in 1949, is to oppose any amendment to the social security law which would include dentists under its provisions. The Council on Insurance, at the direction of the House of Delegates in 1950, is engaged in a survey to determine preferences of the members. Meanwhile, the Massachusetts State Dental Society has reported it will request the House of Delegates to ask for inclusion of dentists in Federal Old Age and Survivors Insurance and stated that an overwhelming majority of its members are in favor of such a resolution.

At the same time, the Association has stated to Congress its support of proposed amendments to the income tax law which would allow dentists to set aside funds for retirement, by payments into a pension fund sponsored by a professional association, before paying income tax.

Opportunity for all members to state their views will be provided at an open meeting of the Reference Committee on Insurance, to be held at the Statler Hotel at 9:00 A.M. on October 16 in the Federal Room, the largest room available, according to Harold Hillenbrand, secretary of the Association. Members can acquaint themselves with the issues by studying the A.D.A. Information Bulletins mailed to them in August and September, the report on pages 368-69 of the September JOURNAL, and the editorial on page 496 of this issue.

Another interesting resolution comes from the Maine Dental Society, which has reported it will request adoption of the "universal system" of designation of the permanent teeth.

ELECTION OF TRUSTEES

Trustees must be elected for the Second, Eleventh, Twelfth and Thirteenth Districts, to replace William McGill Burns of Brooklyn, Fred S. Shandley of Seattle, Willard Ogle of Dallas, Texas, and R. C. Dalgleish of Salt Lake City, respectively, whose terms expire.

REFERENCE COMMITTEE APPOINTEES

Harold W. Oppice, president of the Association, has announced the appointment of nine reference committees from the membership of the House of Delegates whose job it will be to discuss matters for consideration by the House and submit their recommendations to it. All reference committee meetings are open to all members of the Association.

Reference committee appointees are the following:

Constitution and Bylaws: F. J. Dingler of Washington, chairman; Don M. Hamm of Arkansas, and E. W. Newman of New Jersey. *Dental Education:* L. E. Van Kirk of Pennsylvania, chairman; F. C. Baker of Indiana, and W. Talbot Foster of Texas. *Dental Research:* L. R. Main of Missouri, chairman; Homer D. Butts, Jr., of Pennsylvania, and Kurt H. Thoma of Massachusetts. *Dental Trade and Laboratory Relations:* M. E. Lusk of Minnesota, chairman; J. B. Benediktson of California, and Walter E. Dundon of Illinois.

Federal Dental Services: John B. Wilson of California, chairman; Wilbur P. McNulty of

Indiana, and Charles H. Patton of Pennsylvania. *Insurance:* F. A. Pierson of Nebraska, chairman; James F. Colgan of Rhode Island, and Melvin E. Ralston of California. *Legislation:* R. E. Creig of Ohio, chairman; Earle S. Arnold of Connecticut, and A. W. Kellner of Florida. *Public Health:* Lloyd H. Dodd of Illinois, chairman; H. R. Bleier of Wisconsin, and Waldo H. Mork of New York. *Miscellaneous Business:* Edward J. Jennings of New Jersey, chairman; Willard S. Bell of New York, and Howard E. Summers of West Virginia.

Standing committee appointees, also announced by Dr. Oppice, are as follows:

Credentials: Paul W. Zillmann of New York, chairman; Glenn C. Anderson of Iowa, and N. F. Muir of Virginia. *Rules and Order:* E. W. Baumann of Illinois, chairman; G. R. Brooks of Michigan, and A. B. Coxwell of Kentucky.

DENTAL HEALTH CONFERENCE

Large attendance is expected at the second annual conference on dental health, open to all members of the Association, to be held October 13 at the Statler Hotel. State dental directors, chairman of state councils on dental health, and the Council on Dental Health of the Association will discuss water fluoridation problems. Technical problems will be discussed by Willard S. Sitler, public health engineer from U. S. Public Health Service in Washington, D. C., where water fluoridation has been approved and installation plans are under way. Discussions of means of securing community acceptance of fluoridation, the responsibilities of dental and medical societies, health departments and water works also are on the program, with 45-minute open forums at the end of each presentation.

A discussion of the administrative position of dental units in state health departments also is on the program, followed by an open forum on the subject. David W. Brock, chairman of the Council on Dental Health, will preside, and Kenneth A. Easlick of Ann Arbor will summarize the conference.

JOINT MEETING OF A.A.D.E. AND COUNCIL ON JOURNALISM

The American Association of Dental Editors and the Council on Journalism of the American Dental Association will hold a joint meeting on October 13 at the Hotel Statler in the District Room at 9:00 A.M.

On the program are Gerald G. Gross, THE JOURNAL'S Washington correspondent and editor of the *Washington Report on the Medical Sciences,* who will discuss the reporting of scientific news; Dan Smith, director of typography and design at Poole Brothers Printing Co., Chicago, who will discuss the designing of a dental publication; and Olin E. Freedman of Chicago, graphic arts consultant, who will describe how printing budgets can be used to best advantage. State dental journals from the national advertiser's point of view will be discussed by Alan J. Davis, advertising manager of the Dentists' Supply Company of New York.

Two reports of the Council on Journalism are on the program. One, by Joe W. Jones, editor of the *Journal of the Kentucky State Dental Association,* is on the functions and purposes of a state dental society publication; the other, by John J. Hollister, business manager of the American Dental Association, is an analysis of state dental publication advertising rates.

DENTAL SPECIALTIES ADVISORY BOARD

The Advisory Board for Dental Specialties will hold an open meeting on the evening of October 15 in the Statler Hotel, to discuss examination and certification requirements of the various specialty boards, according to Shailer Peterson, secretary of the Council on Dental Education. The Council is engaged in a survey of the dental schools which will aid the A.B.D.S. in its cooperative effort with the dental schools to give adequate training to undergraduate and graduate

students preparing to enter the specialties, Dr. Peterson stated.

President of the A.B.D.S. is John C. Brauer, dean of the University of North Carolina dental school, Chapel Hill. Secretary is Harold J. Leonard of New York.

ORAL SURGEONS AND OTHER GROUPS

The American Society of Oral Surgeons will hold its third annual meeting October 10-13 at the Wardman Park Hotel in Washington.

The A.S.O.S. is one of the 14 groups in the dental field which meet each year close to the annual session of the Association. Dates and places of their meetings appeared in the September issue of THE JOURNAL, along with the names and addresses of their secretaries, from whom details of their programs can be obtained.

TOMB OF THE UNKNOWN SOLDIER

Harold W. Oppice, president, will place a wreath on the Tomb of the Unknown Soldier at an impressive military ceremony scheduled for October 16 at 4 P.M.

Chartered buses and private cars will leave the Mayflower Hotel at 3:15 and proceed to the Arlington National Cemetery behind a police escort. Bus tickets may be obtained at the Registration Desk.

SOCIAL AFFAIRS

Four busy days for the House of Delegates, and of attendance by members at a great variety of top-notch scientific essays, exhibits, clinics, motion pictures and color television demonstrations of dental operations, will be interspersed with a number of social affairs, for which members are urged by the local arrangements committee to register in advance.

President's Dinner • Harold W. Oppice will be guest of honor at the President's Dinner to be held in the Presidential Room of the Hotel Statler on October 17 at 7:30 P.M., before relinquishing the presidential gavel to LeRoy M. Ennis, president-elect, the next day.

Luncheon for Oldest Living Ex-President • A testimonial luncheon honoring Homer C. Brown, oldest living former president of the Association who held office in 1913-14, is scheduled for October 15 at 12:15 P.M. in the South American Room of the Statler Hotel. The luncheon was arranged by a committee of the Association headed by Clyde E. Minges of Rocky Mount, N. C., and is open to all members and guests.

Fiftieth Anniversary Luncheon • A luncheon in honor of the fiftieth anniversary of the U. S. Army Dental Corps, the National Bureau of Standards and the Georgetown University School of Dentistry also is scheduled, to be held in the Congressional Room of the Statler Hotel on October 17 at 12:30 P.M. Kenneth Crawford, national senior editor of *Newsweek*, will be guest speaker.

FRATERNAL GROUPS

Four fraternal groups, Alpha Omega, Delta Sigma Delta, Psi Omega, and Xi Psi Phi, also have scheduled meetings during the annual session.

DENTAL ALUMNI

Headquarters for alumni of the Baltimore College of Dental Surgery, University of Maryland, will be at the Mayflower Hotel, where a breakfast meeting is scheduled for October 17.

Loyola University (Chicago) dental school alumni will hold a breakfast meeting at the Carlton Hotel on October 16.

ENTERTAINMENT

In addition, the Washington session provides opportunity for visits to a great number of national shrines, monuments,

Sen. Robert A. Taft of Ohio, who will speak at the general meeting during the ninety-second annual session of the Association in Washington on October 16. His subject will be "The Federal Government's Role in Health and Welfare."

art galleries, and symphony concerts, and members have been cordially invited to make a tour of the Federal dental and medical institutes and installations in Bethesda and Annapolis, Md., as well as in Washington.

Entertainment for wives of members and their families and guests includes sightseeing tours, a fashion show and luncheon, a symphony concert, and other informal affairs.

GOLF ASSOCIATION

The American Dental Golf Association tournament, to be held at the Columbia Country Club in Washington, will begin on the morning of October 15, and will be preceded by a Calcutta dinner at the Carlton Hotel on Sunday evening and followed by the annual meeting and prize award dinner at the Carlton banquet room on Monday night. Registration will take place at the Carlton golf information bureau.

Association Affairs

BUNTING, AT CENTRAL OFFICE, DISCUSSES CIVIL DEFENSE

Russell W. Bunting of Ann Arbor, Mich., visited the Central Office on September 6 for consultation with staff members with a view to developing plans for participation of dentists in a civil defense. Dr. Bunting is dental consultant to the Federal Civil Defense Administration.

DETROIT STUDENTS ARE FIRST WITH 1952 MEMBERSHIP DUES

The distinction of being first to pay 1952 membership dues in the Association is shared by all of the 279 dental students at the University of Detroit dental school. The students forwarded their dues, representing 100 per cent membership of the student body, through their dean, Rene Rochon, on September 14.

The membership figure increased by 2,692 during June, July and August, bringing the total as of August 31 to 74,577 members, or 537 more than two years ago. Total student membership reached a new high of 9,087.

AUSTRALIAN HEALTH MINISTER VISITS CENTRAL OFFICE

Sir Earle C. G. Page, Australia's health minister and former prime minister, visited the Central Office on September 5, to investigate at first-hand the newer U. S. developments in dentistry, particularly its preventive aspects.

Allen O. Gruebbel, secretary of the Council on Dental Health, reported that the Australian statesman expressed keen interest in water fluoridation, on the

basis of its possible adoption in his country, where, he said, the school health program already includes topical application of fluoride solutions.

Visiting the Blue Cross Plan for Hospital Care offices in Chicago, he is reported by the *Chicago Tribune* to have expressed the hope that 85 per cent of the 8,500,000 Australian population soon will insure themselves in privately financed hospital and health insurance companies under a "help yourself program." At present only 35 per cent of the people are insured, he said.

OTTO U. KING, FORMER ASSOCIATION SECRETARY, DIES

Otto U. King, former secretary-editor of the Association, died on August 13, in Huntington, Ind., after a short illness, at the age of 78.

After graduation from Northwestern University dental school in 1897, Dr. King entered the private practice of dentistry in Huntington, Ind. He served

Otto U. King

the Indiana State Dental Association as secretary and as president, and held the same offices in the Northern Indiana Dental Society.

As secretary of the Association from 1913 to 1927, Dr. King served with those well known dental leaders who brought about reorganization of the National Dental Association, and was intimately associated with every development in national dentistry during the years leading up to organization of the American Dental Association under its 1922 charter. The photograph reproduced here is from the December 1925 issue of THE JOURNAL, where it was printed with an editorial listing his achievements on the termination of his editorship.

He was one of the five dentists who conceived the American College of Dentists and drew up the first draft of its constitution in 1920. He was active also in international dentistry. He attended the 1924 and 1925 meetings of the Fédération Dentaire Internationale in Europe, was a delegate to the 1914 International Dental Congress, and served as secretary general of the 1926 International Dental Congress, which he helped to organize.

He is survived by a son, a daughter, and two granddaughters.

T. B. HARTZELL, FORMER ASSOCIATION PRESIDENT, DIES

Thomas B. Hartzell of Minneapolis, former president of the Association, died on August 26 at the age of 85.

A dentist, physician, educator, and investigator especially interested in oral infection, Dr. Hartzell had served the health professions since 1892 when, while still studying for his dental degree, he was appointed undergraduate instructor

T. B. Hartzell

of histology at the University of Minnesota. After graduation from the dental school in 1893, and from the medical school in 1894, he soon became professor of oral surgery and clinical pathology at the dental school, and research professor of mouth infections at the medical school.

As head of the Association's Research Commission established in 1913, he was one of the leaders in the profession who stimulated the establishment of dentistry as one of the health sciences. In 1922, at a testimonial dinner honoring him on his appointment as president of the Association, Otto U. King, secretary-editor of the National Dental Association, as the American Dental Association was known then, stated that "No other dentist has consummated as much scientific dental research work as has Dr. Hartzell," and listed 77 articles which he had published during the previous ten years. In addition, Dr. King stated his opinion that "if it had not been for Dr. Hartzell's efforts in behalf of the Research Commission's work, the establishment of this organization on a scientific basis would have died in the morning."

The Articles of Incorporation of the American Dental Association, signed on June 19, 1922, appropriately bore his signature, since he was one of the group of officers who, during the previous nine years, had seen the membership grow from 700 to 32,000 under their leadership.

He served also as associate editor of THE JOURNAL, and in many other capacities in the dental profession, locally and nationally.

He is survived by his wife, a son and a daughter.

BUTTERFIELD NAMED EASTERN ADVERTISING REPRESENTATIVE

The appointment of Everett R. Butterfield as eastern advertising representative for all publications of the Association, including THE JOURNAL, has been announced by John J. Hollister, business manager. He succeeds George F. Penny, who resigned.

E. R. Butterfield

Mr. Butterfield has had rich and varied experience in the dental field, including tours of duty with the Charles H. Phillips Chemical Company and the Bristol-Myers Company, Mr. Hollister stated. Mr. Butterfield's headquarters will be at 516 Fifth Avenue, New York.

Dental Societies

MID-CONTINENT CONGRESS SET FOR NOVEMBER IN ST. LOUIS

The eleventh annual Mid-Continent Dental Congress, sponsored by the St. Louis Dental Society, will be held November 25-28 in St. Louis at the Hotel Jefferson.

Essayists and their subjects are George C. Paffenbarger of Washington, D. C., direct resinous filling materials; Edward J. Ryan of Evanston, Ill., "What the Dentist Should Know About Himself"; G. T. Gregory of Indianapolis, oral surgery; B. Placek of Chicago, cavity preparation and gold inlays; M. A. Pleasure of New

John T. Dean of Milwaukee (right), instructor in roentgenographic technic at Marquette University dental school, preparing to take free bitewing roentgenograms for "Alice in Dairyland," at the exhibit sponsored jointly by the Wisconsin State Dental Society, the Marquette University dental school, and the X-Ray Division of General Electric Company, at the Wisconsin State Fair August 18-26 in Milwaukee. Looking on are (l. to r.) H. J. Watson, chairman of the State Society's Public Health and Instruction Committee; T. R. Abbott, dental clinic director at Marquette; Kenneth F. Crane, executive secretary of the State Society; and D. C. Potter, president of the Milwaukee County Dental Society.

"Alice" was the first of thousands to take advantage of the dental health service, in which 9,200 bitewing films were taken free of charge and mailed to family dentists designated by the registrants. When not reigning as queen of the state fair, "Alice" is Marjean Czerwinski of Milwaukee.

York, full denture construction; Stanley D. Tylman of Chicago, fixed bridgework; G. R. Lundquist of Chicago, periodontics; A. L. Roberts of Aurora, Ill., full denture impressions; V. H. Dietz of St. Louis, endodontics; J. B. Bucholtz of Milwaukee, practice management. Limited attendance clinics by most of the essayists also are planned, in addition to one by Roy M. Wolff of St. Louis, on pedodontics, and another by Woodrow O'Brien of St. Louis on cleft palate.

Details may be obtained by writing to the St. Louis Dental Society, 915 Olive Street, St. Louis 1, Mo.

GIES TO RECEIVE SECOND ANNUAL SPENADEL AWARD

William J. Gies of New York will receive the second annual Henry Spenadel Award at the meeting of the First District Dental Society of New York on

The dental health exhibit of the Missouri State Dental Association at the State Fair at Sedalia, on opening day, August 8. Betty Satterfield, assistant secretary of the State Dental Association, demonstrates a toothbrushing technic before giving free toothbrushes to the children.

Members of the Honolulu County Dental Society and dentists in the Federal Dental Services stationed in the Territory of Hawaii, photographed with members of the Association's dental mission to Japan after greeting them on their arrival, August 3, at Hickam Airport, Honolulu, for a two-day stopover on their return journey.

Back row (l. to r.): Adrian Brash, John Y. Ing, John H. Dawe, secretary of the Hawaii Territorial Dental Society, Albert Lemes, Paul T. Nishi, treasurer of the Honolulu County Dental Society, M. Hirata, Harry I. Kurisaki, Col. Chas. W. G. Craig, and Cmdr. W. C. Wohlfarth, Jr. Front row: Harold W. Oppice, president of the Association; LeRoy M. Ennis, president-elect; Mrs. Chas. F. Hoyt, Stanley D. Tylman, Mrs. Adrian Brash, R. C. Dalgleish, Cmdr. Chas. F. Hoyt, George C. Paffenbarger, Lt. Col. Edwin H. Smith, Jack Werner, and Capt. Kenneth Turner.

October 3, it is reported by Isidore Teich, chairman of the award committee.

The award is to be presented to Dr. Gies in "grateful acknowledgement" of his contributions to dental education, the establishment of dentistry as a health service profession, and the promotion of dental research, the award committee stated, referring to him as "one of dentistry's best friends."

The annual award was established last year by the Eastern Dental Society, a branch of the First Dental Society. The first year's recipient was Arthur H. Merritt, 1939-40 president of the Association.

Dental Education

SEEK APPLICANTS FOR DENTAL SCHOOL FACULTY POSITIONS

Every dental school in the United States has approximately seven unfilled faculty positions for which it is seeking applicants, according to Shailer Peterson, secretary of the Council on Dental Education of the Association. Urging dentists interested in teaching to get in touch with the dean of a dental school, Dr. Peterson reported that at least 150 part-time positions are open, the majority of them on a less than half-time basis, and in addition more than 150 full-time faculity positions need to be filled.

According to a recent study made by the Council, the shortage of teachers which existed at the start of the 1950-51 academic year was aggravated during the year by calls to military duty. Of the 293 vacancies that existed on April 17, 113 were caused by loss of teachers to military service during the school year, and only 64 by death, retirement or other reason.

Creighton University, Omaha, and

Baylor University, Dallas, Texas, are among the latest to announce vacancies on their dental school faculties. Baylor University, for instance, announced immediate openings in the departments of oral surgery, crown and bridge, operative dentistry, prosthetic dentistry and oral pathology; and George L. Powers, dental school dean, requested that interested dentists get in touch with him as soon as possible.

W. K. KELLOGG GRANTS AID DENTAL HYGIENIST TRAINING

Two new dental hygienist training programs, one of them in Canada, are being established with the aid of grants from the W. K. Kellogg Foundation of Battle Creek, Mich., announced in August.

The University of Alabama is to receive $18,000, over a two-year period, toward the establishment of a program which will be the second of its kind in the South. The University of Toronto is to receive $34,800 over a three-year period to establish the first training program of its kind in Canada.

In addition, the University of Alabama is to receive a maximum of $25,000 over a four-year period toward the development of short postgraduate courses for practicing dentists in the area.

OCTOBER 19 IS DEADLINE FOR APTITUDE TEST APPLICATIONS

October 19 is the deadline for receipt by the Council on Dental Education of the Association of applications to take the October 26-27 dental aptitude test for admission to dental school in 1952, according to Shailer A. Peterson, secretary of the Council. The test results are used by all of the 42 dental schools in considering the eligibility of their applicants.

Application blanks, and copies of the brochure, *The 1952 Dental Aptitude Testing Program,* published by the Association, may be obtained on request from any of the dental schools.

Applications received after the deadline will be included in the test scheduled for March 7-8, 1952, Dr. Peterson announced.

WESTERN DENTAL EDUCATORS DISCUSS AUDIOVISUAL AIDS

The application of audiovisual aids to dental education was discussed by western dental educators at a Conference on Dental Teaching in San Francisco September 5-7. Sponsored by the University of California dental school with the assistance of the W. K. Kellogg Foundation, the program was comprised of discussions and demonstrations of various technics already in use, including television, as well as consideration of new technics to meet new needs.

The conference was the second of its kind, the first having been sponsored by the University of Oregon and the W. K. Kellogg Foundation last year.

Legislation

DENTISTS JOIN LOCAL HEALTH UNITS IN WELFARE PROGRAM

Recent legislation in Washington State makes local dental societies and local health departments jointly responsible for formulation and administration of programs of dental health care for welfare recipients. The responsibility was formerly in the hands of the State Welfare Department, administered by lay personnel. Medical health care programs also are to be administered at the local level, in consultation with local medical societies.

One example of plans already in operation is the joint program of the Seattle District Dental Society and the Seattle-

King County Health Department which went into effect on August 1. Under this plan, a dentist appointed by the Welfare Committee of the Seattle District Dental Society examines welfare recipients and authorizes dental services which have been jointly approved by the Society and the Seattle-King County Health Department. The relief client chooses his dentist from a list of participating dentists, each of whom must have signed a "Health Service Agreement" with the State Department of Health. Dentists are reimbursed according to a schedule of standardized dental fees, set up in consultation with dental society representatives, and reported to be about the same as those of the Veterans Administration.

Armed Forces

MILITARY SURGEONS' PROGRAM GIVES TWO DAYS TO DENTISTRY

The Association of Military Surgeons of the United States will hold its annual meeting October 8-10, with the last two days devoted to dental subjects. The meetings will be held in Chicago at the Palmer House.

The program includes presentations on manpower problems, dental experiences of the Armed Forces in Korea, maxillofacial and other combat injuries, as well as oral cancer, radioactive isotopes in dentistry, masticatory efficiency studies, misusage of antibiotics in the control of oral infection, the role of the dentist in civilian defense, and other subjects.

Headquarters of the A.M.S. is at the Armed Forces Institute of Pathology, Washington 25, D. C. Its secretary is Col. James M. Phalen (Ret.), who also edits the *Military Surgeon*, official journal. Brig. Gen. L. C. Fairbank (Ret.) is president of the dental section.

SOME DENTAL OFFICERS MAY BE RELEASED AFTER ONE YEAR

Some of the dental and medical personnel serving in the Armed Forces will be eligible to apply for release after only 12 months' service, according to policies announced in September by the National Advisory Committee to Selective Service.

Although Army and Navy policies conform in most respects to the Selective Service law, special registrants and reserve dental and medical officers who served at least a year during hostilities of World War II may, in most instances, apply for release after from 12 to 17 months' service. The Army requires a full 24 months from dental and medical personnel in the Organized Reserves.

The Air Force policy is to accept requests for release after 21 months' service from dentists and physicians. If they were in Priority I or II, the 21 months must be during the present term of service, the announcement stated.

2,434 OF 3,872 PRIORITY I DENTISTS NOW COMMISSIONED

Latest Defense Department figures on the commissioning of registered dentists and physicians, released in September, showed 2,434 commissions granted to dentists (Army, 1,363; Navy, 211; Air Force, 860), and 5,200 to physicians (Army, 2,735; Navy, 354; Air Force, 2,111). Priority I dentists and physicians registered with Selective Service as of July 31 totaled 3,872 and 10,654 respectively.

No induction quotas for dentists were issued, and the Defense Department postponed induction of the 152 Priority I physicians it had requested for September, on the basis of "a sustained volunteer

rate [of physicians] applying for Reserve commissions. . . ."

NAVY COMMISSIONING RESERVE DENTISTS IN REGULAR CORPS

The Navy has announced it is accepting applications from Reserve dental officers for appointment in the Regular Navy Dental Corps. Applicants under 37 years of age who are now serving on active or inactive duty in the grade of lieutenant or lieutenant (j.g.) are eligible, but those on inactive duty must have had previous military experience other than training duty.

Applicants on active duty should apply by letter to the Chief of Navy Personnel via their commanding officer, for receipt by the personnel chief before October 15. Applicants on inactive duty should apply at their nearest Navy recruiting station and Office of Naval Officer Procurement.

ADMIRAL CHANDLER MAKING OVERSEAS INSPECTION TRIP

Rear Admiral Alfred W. Chandler of Washington, D. C., dental inspector general at the Navy Bureau of Medicine and Surgery, and second vice-president of the Association, left on August 27 for a tour of inspection of dental facilities in the Pacific and Far East, it is reported by the Navy Department. Accompanying him were Capt. Clay A. Boland of Philadelphia, dental head of the Naval Reserve, and an executive assistant.

International

CANADIAN FEDERAL GRANT AIDS DENTAL HYGIENIST TRAINING

A health training grant of $6,537 from the Canadian Government is enabling the Saskatchewan Department of Public Health to train six dental hygienists at approved schools in the United States, it was announced recently by the Canadian Dental Association.

The Saskatchewan hygienists, each with a $1,900 scholarship from the Department of Public Health of the province, are to receive their training at Northwestern University, the University of Michigan, the University of Minnesota, Columbia University, the Forsyth Dental Infirmary, the Eastman Dental Dispensary, or the University of Toronto, according to Don W. Gullett, secretary of the Canadian Dental Association.

Dr. Gullett explained that the health training grants are part of a $34,000,000 annual expenditure by the Canadian Government in grants to the provinces for "health promotion and conservation" purposes, under the national health plan launched in 1948. The Canadian Dental Association was consulted when the grants were established, and Saskatchewan is the only province to date which has utilized the grants for dental hygienist training, he said.

The dental hygiene training program at the University of Toronto, the first in Canada, is being established with the aid of a $34,800 grant from the W. K. Kellogg Foundation of Battle Creek, which announced the program was to start this fall.

INTERNATIONAL CONGRESS WILL SIFT WORLD DENTAL PROBLEMS

Dentists from all over the world next year will take steps toward solution of the world's dental problems when they exchange views, in both formal and informal discussions, at the Eleventh International Dental Congress in London July 19-26. Sponsored by the Fédération Den-

Officers of the Fédération Dentaire Internationale at the banquet held during the 1951 annual meeting of the F.D.I. in Brussels, Belgium, in June. Left to right are W. Stewart-Ross of London, England, honorary treasurer; Rene Jaccard of Geneva, Switzerland, member of the consultative committee to the World Health Organization, and honored during the meeting for his fifty years of dental practice; A. L. J. C. van Hasselt of the Hague, Holland, honorary vice-president; Harold Hillenbrand, president of the commission on publications, chairman of the finance committee, and chairman of the U.S.A. delegation; A. E. Rowlett of Leicester, England, honorary president; M. F. Watry of Brussels, secretary general; Alfred de Teeye, Belgian minister of public health; and Ch. F. L. Nord of Amsterdam, Holland, president.

taire Internationale, the Congress will be held in the Royal Festival Hall on the South bank of the Thames where, according to E. Wilfred Fish, president designate, in addition to "symposia where the world's best dental brains will debate urgent problems, with dentists from all over the world participating, there will be many opportunities for informal conversations."

In order to obtain maximum benefit from the Congress, both dentists attending it and those unable to do so have been advised by F.D.I. officials to obtain copies of the *International Dental Journal* beginning with the September 1951 issue, first of the four consecutive issues in which the reports to be discussed at the Congress are being published in full. Officials explained that summaries only will be presented during the meetings, in order to stimulate and allow time for more fruitful discussion, each dentist having acquainted himself beforehand with the full report. Transcripts of the discussions will be published in the four issues of the journal subsequent to the Congress.

Subscriptions can be obtained for $8.50 per year from British Publications, Inc., 150 East 35th Street, New York. Subscription for members of the Fédération is $7.65.

FRENCH INTERNATIONAL DENTAL PROGRAM

The program for the twenty-fifth international congress of the Journées Dentaires de Paris, November 21-25, was near completion in mid-September, and dentists wishing to take part in it were urged to submit details of their presentations without delay.

Robert Rolland, the secretary general, reported that among the participants would be S. Palazzi and F. Strini (Italy), S. Dreyfus, E. Schaer, and Dr. Roos (Switzerland), J. R. Riblat (England), and W. N. Burford (U.S.A.), as well as an outstanding dentist from Algiers, Dr. Djian, and many from France.

All correspondence should be directed to Dr. Rolland at 15 Boulevard Malesherbes, Paris 8, France.

FRENCH STOMATOLOGISTS PLAN OCTOBER CONGRESS IN PARIS

The twelfth French Congress of Stomatology will be held October 8-13 in Paris at the Eastman Institute.

Presentations on chronic swelling of the parotid gland, the treatment of periodontal disease, hemostasis in dentistry,

and surgical treatment of the maxillary sinuses are included in the program, as well as clinics and demonstrations at the Stomatology Institute of the College of Medicine of Paris.

Registration fee of 5,000 francs (approximately $14.30) should be mailed to the treasurer, Dr. Ginestet, 79 Rue des Plantes, Paris 14. Visitors registered for the Congress may obtain special rates on the French railroads, and at hotels and theaters, by writing to the Organisation Francaise d'Accueil du Corps Medical Mondial, 60 Blvd. de la Tour Maubourg, Paris 7.

INTERNATIONAL ORAL DYNAMICS ACADEMY TO MEET OCTOBER 14

The International Academy of Oral Dynamics will meet on Sunday, October 14 at 2:00 P.M. at its headquarters, 5510-16th Street, N. W., Washington, D. C., for a program which will include clinics and refresher courses on bite correction. The Academy was formed a year ago in Atlantic City.

Further information may be obtained by writing to Ralph L. Morrison, secretary-treasurer, 1028 Connecticut Ave., N. W., Washington, D. C.

ANTIOQUIA, COLOMBIA, DENTAL SOCIETY ELECTS NEW OFFICERS

The Sociedad Odontologica Antioguena (Dental Society of Antioquia), constituent of the dental society of Colombia, South America, has announced its newly elected officers for 1951-52. They are: Leonel Estrada J., president; Mariana Arango T., vice-president; Arturo Gonzalez Ch., secretary; Jorge Arango V., treasurer.

Public Health

PREDICT FLUORIDATION OF CAPITAL'S WATER BY SPRING

Washington, D. C., should have water fluoridation equipment installed and in operation by early spring, 1952, if the prediction of Edwin A. Schmitt, chief of the Army Engineer Corps responsible for the installation is correct.

After Congress, on August 2, approved a $130,000 budget item for this purpose, Mr. Schmitt said that five or six months would be required for obtaining and installing the equipment and procuring the fluoride compound. An official of the dental bureau of the District Health Department was quoted as saying that U. S. Public Health Service has promised delivery of sodium fluosilicate within 60 days after placing of bids.

The District of Columbia Dental Society, the Robert T. Freeman Dental Society, the District of Columbia Unit of the American Society of Dentistry for Children, and the *Washington Post* participated actively in the campaign to fluoridate the District's water, according to Israel Shulman, chairman of the Committee on Dental Health of the District of Columbia Dental Society.

Meanwhile, Washington suburban communities not supplied by District water are planning their own fluoridation installations. Two Maryland counties in the area will have equipment installed and operating within four months, according to Harry B. Shaw, deputy chief engineer of the Washington Suburban Sanitary Commission. In Virginia, the Alexandria Water Co., which is privately

owned, has offered to institute fluoridation at its own expense if the areas it supplies approve it.

Other Communities • Washington is one of approximately 100 communities in which approval of fluoridation has been obtained and installation is in the planning process. Two hundred other communities have the caries-preventive measure under consideration. More than 100 communities already are fluoridating their water supplies.

Canal Zone • Fluoridation by January 1952 is expected in Balboa Heights, Canal Zone, where the year-long campaign of Canal Zone dentists resulted recently in allocation of funds for this purpose, it is reported by U. S. Public Health Service.

USPHS AND PATHE NEWS PRODUCE FLUORIDATION MOVIE

A documentary film on fluoridation is being produced in Newark, Del., by Warner Pathe News, Inc., in cooperation with U. S. Public Health Service, according to Bruce D. Forsyth, chief USPHS dental officer.

Entitled "A Drop in the Bucket," the film will tell the story of two years of community study and planning which led to installation of fluoridation equipment in Newark a year ago. The film will be distributed to health departments and other organizations to encourage adoption of the health measure, Dr. Forsyth said.

WISCONSIN MEDICAL SOCIETY URGES WATER FLUORIDATION

The State Medical Society of Wisconsin is believed to be the first medical society to endorse officially the fluoridation of community water supplies as a caries preventive measure.

In a resolution adopted unanimously on August 8, the Society urged all physicians "to seek the adoption of a program of fluoridation in every Wisconsin community having a public water supply that is deficient in fluoride," and instructed the Wisconsin delegation to the American Medical Association to seek A.M.A. endorsement of fluoridation of public water supplies. A copy of the resolution was to be sent to every county medical society, the state health officer, and every district and local health officer in Wisconsin.

STOP SALE OF CANDY TO SCHOOLS, APHA GROUP URGES

Not only should the sale of candy, carbonated beverages and other confections to schools be discontinued, but "education in this area of our public health endeavor [should] be increased and expanded," according to the Southern Branch of the American Public Health Association.

The recommendation was quoted in a news letter to all USPHS dental officers and auxiliary dental personnel by the Chief USPHS Dental Officer in August.

The National Congress of Parents and Teachers released a similar recommendation in August. (See editorial in September JOURNAL, page 307.)

DENTAL HEALTH IN MONTANA IS A BASIC HEALTH SERVICE

Dental health is now recognized in Montana as one of the seven basic public health services, according to Francis I. Livingston, director of the division of dental health of the Montana State Board of Health. Traditionally the basic health services have heretofore included only six major areas.

The step was taken when the Montana Board set up eligibility standards governing financial aid for local public health

services, in order to encourage establishment and maintenance of local fulltime public health departments and to develop the maximum local responsibility for health services consistent with Montana law, Dr. Livingston reported.

The seven basic health services now are comprised of dental health, health education, vital statistics, communicable disease control, environmental sanitation, public health laboratory services, and maternal and child health including school health services.

U. S. MARINE HOSPITALS ARE RENAMED USPHS HOSPITALS

U. S. Marine Hospitals, which have been part of the American scene since 1798, were redesignated U. S. Public Health Service Hospitals on July 1 in order to provide a uniform name for the 21 hospitals operated by USPHS.

In announcing the change, Leonard A. Scheele, Surgeon General, pointed out that the older designation, which dated from legislation approved 153 years ago when the hospitals were part of a medical care program for merchant seamen, was no longer descriptive of the functions performed in USPHS hospitals.

ILLINOIS PUBLIC HEALTH DENTISTS ATTEND WORKSHOP

Approximately 25 full-time public health dentists and consultants to local health departments attended a three-day workshop-type conference on public health dentistry in Springfield, Ill., September 4-6. The conference was conducted by the Division of Public Health Dentistry of the Illinois State Department of Public Health.

At the close of the conference, participants aided in ceremonies in which newly installed fluoridation equipment at Assumption was started into operation, and the town became the first Illinois community to begin fluoridating its water on a nonexperimental basis, according to W. Philip Phair, assistant secretary of the Council on Dental Health, who officiated.

Research

UNIVERSITY OF ILLINOIS GETS $3,500 RESEARCH GRANT

A grant of $3,500 to the University of Illinois dental school from Amurol Products Company, Chicago, in support of a study on the dental plaque, has been announced. The study is being conducted by Robert G. Kesel, head of the department of applied materia medica and therapeutics, and Edward C. Wach of the same department.

200 ATTEND PERIODONTAL DISEASE MEETING AT MICHIGAN

Attendance of nearly 200 dentists, including educators, dentists in general practice, public health dentists, dentists in the Federal services, and graduate dental students, was reported at a Periodontal Disease Workshop held in Ann Arbor September 10-15.

Aim of the conference, sponsored jointly by the School of Dentistry and the School of Public Health of the University of Michigan in cooperation with the W. K. Kellogg Foundation Institute, was to reach conclusions regarding the etiology of periodontal disease and the scientific value of the available control measures.

Utilizing the technic of consultant and group participation, the workshop was comprised of morning lectures to all participants, followed by afternoon discussions by special committees appointed to evaluate the information presented. The last day of the conference was devoted to

reports of their conclusions by evaluation committee chairmen, with discussion and amendment by all participants before final acceptance.

Subjects of the evaluation committees, and their chairmen, were as follows: behavior of the gingival and supporting tissues, Joseph L. Bernier of the Armed Forces Institute of Pathology, Washington, D. C.; local factors in periodontal disease, Thomas J. Hill of Cleveland, professor of clinical oral pathology and therapeutics at Western Reserve, and chairman of the Council on Dental Therapeutics of the Association; systemic factors in periodontal disease, H. B. G. Robinson, professor of dentistry at Ohio State University; the treatment of periodontal disease, Henry M. Goldman, chief of the dental department and director of dental research, Beth Israel Hospital, Boston; and the prevention of periodontal disease, Paul E. Boyle of Philadelphia, professor of histology and pathology at the dental school, and professor of pathology at the graduate medical school, University of Pennsylvania.

The conference is the third of its kind in Ann Arbor, sponsored jointly by the two schools. The first was concerned with dental health economics, and the second with the control of dental caries.

General

125,000 PHYSICIANS TO GET FOCI OF INFECTION REPRINT

Each of the more than 125,000 members of the American Medical Association last month received a reprint of the 87-page review, "An Evaluation of the Effect of Dental Foci of Infection on Health," which comprised the special June issue of THE JOURNAL. The reprints are being distributed by Church and Dwight Co., Inc., of New York.

In announcing circulation of the reprints, E. R. Hays, physician head of the health education department of the company, stated the organization had pursued a policy of health educational service since 1846, and that its officers "now welcome the opportunity to perform a service to dentistry and medicine toward better understanding of the problem of dental foci of infection, provided by THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION."

The article was prepared at the University of Michigan by Kenneth A. Easlick and 12 consultants in the dental and medical sciences, and is a project of the Council on Dental Health of the Association. Reprints are available on request from the Central Office.

48-PAGE ATOMIC ENERGY IN DENTISTRY REPRINT AVAILABLE

A 48-page reprint entitled "Dental Applications of Atomic Energy," from the August-September 1951 issue of the *New York Journal of Dentistry*, is available from the First District Dental Society of New York, which published it. The price is 50 cents a copy.

Requests should be addressed to the Secretary, First District Dental Society, Hotel Statler, New York.

NATIONAL DENTAL LABORATORY ASSOCIATION IS ORGANIZED

The National Dental Laboratory Association held its charter meeting September 15-17 in Chicago.

The organization was formed after a Committee for National Dental Laboratory Unity, comprised of representatives

from the American Dental Laboratories Association and the Dental Laboratories Institute of America, had spent many months planning unification of their activities. The A.D.L.A. and the D.L.I.A. are now dissolved, it is reported.

Officers elected under the new N.D.L.A. charter are: president, Robert Rothstein, of the Rothstein Dental Laboratories, Washington, D. C.; vice-president, Paul Stough, of the Stough Dental Laboratories, Cleveland; secretary, John Thompson of the Thompson Dental Laboratory, Kalamazoo, Mich.; and treasurer, Tom A. Stevens, Stevens Dental Laboratory, Seattle, Wash.

The new organization will have its headquarters in Washington, D. C. At the time of going to press the group had adopted a code of ethics, and was electing an executive council. The house of delegates is to be comprised of representatives from each state, it was reported.

MINNESOTA PEDODONTISTS OFFER SEMINAR IN OCTOBER

The Minnesota Unit of the American Society of Dentistry for Children will hold its second annual all-day seminar October 27 at the University of Minnesota, Minneapolis, and has invited attendance by interested dentists. Guest lecturers include William Humphreys of Denver and C. A. Frey of Appleton, Wis.

Details may be obtained by writing to Charles D. Simpson, secretary, 4005 Vernon Avenue, Minneapolis 16, Minn.

MONTEFIORE INVITES DENTISTS TO CLINIC-OPENING LECTURE

Dentists are invited to attend the opening ceremonies of the new dental clinic at Montefiore Hospital for Chronic Diseases, New York, on October 31 at 8:30 P.M. when E. B. Manley of Birmingham, England, professor of dental pathology at the University of Birmingham dental school, will be guest speaker. Dr. Manley's presentation, entitled "Caries: A Physicochemical and Histologic Approach," will be discussed by Charles F. Bodecker, dental department consultant. The invitation was issued by David Tanchester, chief of dental service at Montefiore Hospital.

ORTHODONTISTS OFFER $500 PRIZE IN ESSAY CONTEST

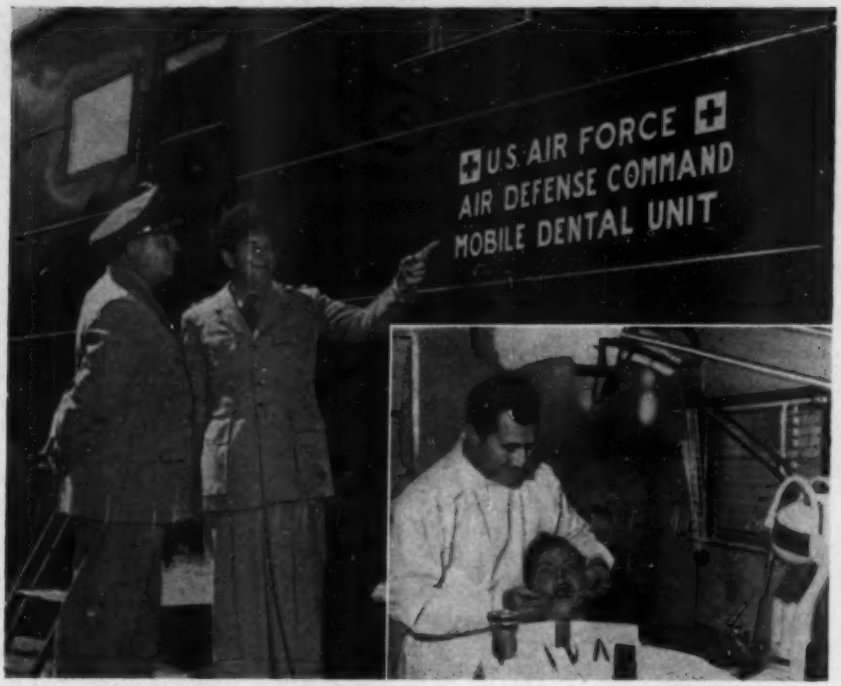
A $500 cash prize is offered by the American Association of Orthodontists, for the best essay "representing an original investigation and containing some new significant material of value to the art or science of orthodontics," according to a recent announcement from the organization's research committee.

The contest is open to any teacher, researcher, undergraduate or graduate student affiliated with a recognized dental institution, as well as to members of the A.A.O. Deadline for receipt of entries is March 1, 1952. The winning author will be invited to present his essay at the A.A.O. meeting in St. Louis, April 22-24.

Details concerning the form in which the essay must be presented may be obtained by writing to J. A. Salzmann, chairman of the research committee, American Association of Orthodontists, 654 Madison Avenue, New York 21.

NOVEMBER "CARE" CAMPAIGN SEEKS $1,500,000 FOR KOREA

A "CARE for Korea" campaign, with a goal of $1,500,000 by Thanksgiving Day, will begin on November 12, according to Paul Comly French of New York, executive director of the Cooperative for American Remittances to Europe, Inc. Aim of the campaign, conducted by the General Federation of Women's Clubs, is to provide CARE relief packages for 150,000 of the estimated 3,000,000 persons left homeless by hostilities in South Korea.



Brig. Gen. John M. Hergreaves, air surgeon, and Lt. Col. S. G. Gordon, dental surgeon, at the Air Defense Command headquarters at Colorado Springs, Colo., with the mobile dental unit which they are credited with developing to provide dental care for airmen stationed at isolated radar posts. Inset, Colonel Gordon examines the mouth of WAF Sergeant Virginia James in one of the dental chairs in the unit.

The unit, first of a fleet of 11 to be completed, is equipped with two dental chairs and operating units, roentgenographic unit, electric sterilizer, two dental cabinets with instruments, a darkroom, completely equipped dental laboratory, 80-gallon water tank, 3,000 volt electric generator, two air-conditioning units, 100-ft. cable reel for connection to outside power sources, electric water pump, and telephone facilities.

BUY DEFENSE BONDS REGULARLY GENERAL MARSHALL URGES

General George C. Marshall, Secretary of Defense, on September 3 urged the American people to purchase Defense Bonds regularly. Launching the Treasury Department's Defense Bond Campaign with an open letter to the American people published in the nation's newspapers, he said:

Probably never before has there been so much at stake in the preservation of the freedom which we have enjoyed since the birth of our republic. All of us that possibly can do so should participate in its defense and this we can do by regularly purchasing Defense Bonds, thereby maintaining a strong economy essential to our free way of life.

Book Reviews

COMMUNITY HEALTH

By Lawrence B. Chenoweth, M.D., and Whitelaw Reid Morrison, M.D. Third edition. 314 pages with illustrations. Index. Price $3. New York, Appleton-Century-Crofts, Inc., 1949.

According to the preface, this book was written for college courses in community hygiene or community health. It is a revision of a book first published in 1934 under the title of *Community Hygiene*. An interesting section of the book is called, "What is a public health problem?" In the course of three pages, the authors explain why conditions other than communicable diseases are legitimately the concern of health departments. A considerable part of the book is devoted to a discussion of different diseases classified according to the method of dissemination. There are only a few references to the place of dentistry in public health work. The factual information is well presented for the particular audience to which the book is addressed but it would seem appropriate for more attention to be focused on the responsibilities of community organizations other than health departments. One wonders, too, if this kind of book could not more directly attempt to interest college students in public health work as a career. There is a glossary and an index which add greatly to the usefulness of this volume.

M. E. Gooch

PRINCIPLES OF PUBLIC HEALTH ADMINISTRATION

By John J. Hanlon, M.D., M.P.H. 506 pages with 48 illustrations. Price $6. St. Louis, C. V. Mosby Co., 1950.

Public health is big business today, a major function of our city, state, and Federal governments. No longer is it true that the health officer's job is a sinecure for the physician who has failed in private practice. Now he is more likely to be an extremely competent person who has deliberately chosen this career and has received graduate training to prepare him for it. It is for this person principally that Professor Hanlon has prepared this excellent text. There are three major divisions. Part 1 traces the historical development of the public health movement and presents a unique actuarial and statistical analysis of the spectacular savings in the economic value of life that public health progress has produced. Part 2 deals directly with administrative principles and problems. Here are discussed the organizational, personnel, fiscal, legal, governmental, and public relations responsibilities of the public health administrator. While basically the same problems are encountered in public administration generally, the health department presents facets of its own which warrant special consideration and study; there are the distinctive kinds of personnel involved, the peculiar characteristics of public health law, and the very special public relations the health department must maintain. Part 3 takes up the basic activities of the health department, but description of program content is avoided. Instead, discussion is limited "as much as possible to some of the administrative considerations involved in each of the various component parts of the public health program." This volume is of value not only for the neophyte health officer but for the administrator, however well trained. There is much in it for everyone employed in a health department or enrolled in a school of public health.

I. Altman

BITING FORCE IN MAN—MEASUREMENTS UNDER CONDITIONS OF PHYSIOLOGICAL FREE WAY SPACE BETWEEN THE TEETH

By Folke Strenger, D.M.D. 90 pages with 17 illustrations and six diagrams. Stockholm, Aktiebolaget Fahlcrantz' Boktryckeri, 1949.

In this monograph the author has listed the defects of the previous attempts to devise accurate and dependable methods for determining the pressure developed between the teeth in biting and chewing and the results obtained by the use of instruments constructed for measuring that pressure or so-called bite force. The author uses two terms, biting force and force by biting. He apparently accepts a definition of the phrase "the force by biting" offered by Riechelman (1920) as "the total force of those muscles which move the lower jaw upwards." The actual figures the author secures by his technic, or the biting force for each mouth, obviously are less than this "force by biting" due in part to the condition of the

teeth and investing tissues and in part to the degree of neuromuscular coordination. The method proposed and used is based on a sort of inverted application of the Brinell hardness test. Suitable rolled lead plates of either 0.5 or 1.0 mm. thickness are stamped to exactly fit the occlusal surfaces of four lower teeth in a single unit, one for each side of the mouth (first and second molars and the two bicuspids). The impressions produced in these plates by the cusps of the upper teeth during a maximum two second occlusion of the jaws are measured and the force calculated from the measurements of these defects in the plates. Plate records are made from both sides simultaneously. Measurements may be made in the incisor region or from single teeth by similar methods. For research purposes this method is recommended but it does not seem to be appropriate for clinical use. The translation of the original text into English is not satisfactory. The lever arrangements in the two diagrams on page 28 do not seem to depict the actual situation.

E. H. Hatton

FOOD VALUES OF PORTIONS COMMONLY USED

By Anna de Planter Bowes, M.A., and Charles F. Church, M.D., Seventh edition. 94 pages, Price $2.25. Philadelphia. Anna de Planter Bowes, 1951.

The tables composing this book supply authoritative data on food values. The units used are the measures or portions commonly served in homes, schools, restaurants and hospitals, thus are really practical. Data on cooked and frozen foods are included. There are supplementary tables on family food plans at low and moderate cost, and tables of sodium, potassium, cholesterol and purine content of food.

Foods are grouped in classes. This permits ready comparison of food values. The classes are arranged alphabetically. It would facilitate use if headings of food classes were more clearly differentiated from the rest of the text.

The brief explanatory notes placed on most pages are excellent. I would suggest moving the footnote about potato and ascorbic acid variation from page 79 (one pound portions) to page 56 (individual portions), as many more persons will refer to the latter. Placed as it is, they might miss the statement regarding the wide seasonal differences in ascorbic acid content.

Thousands of food items are listed, yet there are a few omissions of some commonly used foods. For example, no descriptive term is used with the cottage cheese values (p.18) to show whether it is dry or creamed. Inspection of the figures would indicate that the figures must be for the dry form, yet in most areas, the creamed form is commonly found in retail stores. Thus many users of the table will have a false idea of the calories and protein value of the portion consumed. Another instance is the lack of a listing for green or Pascal-type celery. The use of "small and large leaves" in description of portions of head lettuce is not practical, since this vegetable is usually served in cut wedges. Despite these minor omissions, this set of tables is a reliable, up-to-date source for quantitative data on food values. The tables are readily understandable to those without special nutrition training. It can be recommended for use by dentists.

Dorothea F. Radusch

PERSONNEL ADMINISTRATION IN PUBLIC HEALTH NURSING

By William Brody. First edition. 209 pages with 13 illustrations. Index. Appendix. Price $3.25. St. Louis, C. V. Mosby Co., 1951.

This book does not contain anything new relative to personnel administration, but it does condense in a small volume clear and concise personnel policies and administrative procedures as they relate to public health nursing. The book covers practically all phases of job specification, recruitment, placement, training, promotion, and separation that might come into the employment of a public health nurse. The appendix contains detailed questions for a self-appraisal of the personnel program and a suggested list of questions for a short-answer examination to aid in determining professional knowledge of public health nurses.

Personnel Administration in Public Health Nursing should be very helpful to all supervisors who wish to employ and hold well qualified public health nurses.

Mary S. Sim

X-RAY TREATMENT, ITS ORIGIN, BIRTH AND EARLY HISTORY

By Emil H. Grubbé, M.D. 153 pages with 51 illustrations. Price $3. St. Paul, Bruce Publishing Co., 1949.

Most members of the dental profession, who accept as a matter of course the great contribution of the x-ray to dental practice, will find this historical text of particular interest.

Many have not seen the lesions on the fingers of older dentists who pioneered in the field of dental roentgenography unconscious of the fact that holding films with their fingers or testing the gas tubes that preceded the present Coolidge tubes exposed them to irreversible damage by the rays.

The author was active in the development of the x-ray from the very beginning. Through lack of knowledge he suffered such serious damage he submitted to 83 operations to save his life. Not so fortunate were more than 100 physicians who are listed by the author as American, British and European martyrs to the advance of roentgenology.

The author devotes chapter 10 to an interesting discussion and description of the deleterious effects of the rays on his unprotected body over the years. He does not state at which period of his pioneer work he employed measures to protect himself from the rays. Many interesting comments on the treatment of his own burns are included, as well as valuable notes on medical and surgical treatment.

Chapter 11 is devoted to the early history of roentgen ray therapy, the technical and therapeutic problems of the pioneers in this field, and the open hostility and prejudices of the medical profession due to ignorance, backwardness and jealousy. Included is a chronological history of the progress of roentgen therapy.

Chapter 14 is devoted to the trials and tribulations of his contemporaries, the pioneers in this work, and is a tribute to their untiring zeal.

The final chapter, "X-ray Therapy of Tomorrow," is a prediction of increased future usefulness for this well-established method of treatment.

A bibliography and short biography complete this most interesting book.

C. W. Waldron

ON THE REPRODUCTION OF DENTAL ARTICULATION BY MEANS OF ARTICULATORS: A KINEMATIC INVESTIGATION

By Gunnar Bergstrom. First edition. 149 pages. Index. Bibliography. Orebro, Sweden, A.-B. Littorin Ryden, 1950.

This rather short and interesting volume is intended to be a theoretical analysis of articulator occlusion methods and procedures. The book consists of 12 well written chapters on the general subjects of occlusion, positional jaw relation records and articulating instruments commonly employed.

There are enough theoretical analyses to interest those wishing to explore the field of mathematics and, also, an abundance of practical information to apply in the everyday requirements of clinical prosthetic dentistry. One of the most interesting portions of the book is chapter 6, which investigates statements frequently made about such things as the Balkwill angle, Monson theory, Gothic arch tracings, the Bennett angle and Hanau's equation.

This book offers a concise and informing synopsis, conclusion and summary, each in a separate short chapter. Three pages are devoted to an "explanation of some terms," which is helpful in a volume of this kind.

People who are interested in occlusion and in the various whys and wherefores of prosthetic dentistry should find the book a welcome addition to the library.

James H. Pearce

RESTAURATION ET PROTHÈSE MAXILLO-FACIALES (FRACTURES—PERTES DE SUBSTANCE—DIFFORMITÉS)

By Maurice Ponroy, M. Psaume and L. Boutroux. Second edition. 535 pages. Price 1,800 francs. Paris, France, Masson & Co., 1950.

The authors of this book acquired a great deal of experience during World War I and World War II while in charge of a maxillofacial center of the French army.

They have divided their book into three main chapters, the first dealing with the mandible or lower part of the face, the second chapter referring to the maxillofacial area or middle part of the face, and the third referring to both the lower and middle parts.

Among the subjects thoroughly discussed are fractures and their consequences, different varieties of ligatures and appliances, restorations when loss of bone occurs and subsequent reduction of fractures, deformities of the facial area and their treatment, treatment following removal of tumors, surgical methods and prosthetic appliances for cleft palate cases and plastic surgery.

It is impossible in this brief review to mention the multitude of treatments and appliances illustrated in this book, but certainly anyone interested in maxillofacial surgery should read it.

Hratch Abrahamian

Current Literature

THE DENTIST AND THE ORTHODONTIST: A STUDY IN INTEGRATION

A. S. Bumgardner. Am. J. of Orthodont. 36:207, March, 1950.

In the past decades specialization in all fields of human endeavor has developed to such a point that one of society's major problems of the moment is the integration or coordination of the knowledge and activities of men in allied areas of endeavor. We have sometimes been critical of labor groups because the electrician will not do plumbing and the engineer will not repair the locomotive; but actually the situation is not confined to labor groups, and extends into practically all professions. In the field of religious education the directors are now trained for children's work or adult work, and subdivisions within these divisions are appearing. Therefore, it is not surprising to find that the dentist and the orthodontist have grown farther apart in their actual functioning. This gradual tendency for each specialist to isolate himself even from his professional first cousins is simply a reflection of the age in which we live, and no one can be said to be to blame for it.

By means of interviews and questionnaires a few problems relative to the interrelationships of the dentist and the orthodontist have been explored. The dentists who were asked to cooperate were found to be eager to improve their relationships. Although they are not confident that the orthodontist is so eager to participate in efforts toward such improvement, they will welcome all sincere overtures. There is apparent confusion as to practice and procedure. A study of this nature can best serve as a preliminary step toward the formulation of a program of study of the possibilities for improvement of the coordination of the functions of the dentist and the orthodontist.

William F. Ford

CYST OF THE MANDIBLE: REPORT OF A CASE WITH PROSTHETIC RESTORATION

William T. Williams. U. S. Armed Forces M. J. 1:881, August, 1950.

The perplexing problems presented by neoplastic lesions of the mandible require that the oral surgeon and the prosthodontist work in close cooperation to obtain satisfactory functional and cosmetic results. A case is reported of a 22 year old soldier found to have had a cyst in the right side of the mandible. After curettage, the cyst recurred. The entire right side was then resected and bone grafts were attempted. Union was not obtained though an osteoperiosteal graft was wired into the areas of nonunion. It was thought that the patient had enough mandible for good function if a prosthesis could be constructed to immobilize the remaining portion of the jaw. The prosthetic appliances were constructed with gratifying results from both a cosmetic and functional standpoint.

Carlos Weil

DENTAL SERVICE IN GENERAL HOSPITALS

Earle J. McClung. Mil. Surg. 106:463, June, 1950.

A seriously wounded soldier evacuated from the front passes through numerous medical department installations until he reaches a numbered general hospital in the area which is equipped to give the ultimate in treatment. The dental organization for each of the different sized hospitals is described.

The dental equipment of these hospitals is such that it is possible to undertake any type of dental operation. Additional supplies and replacements may be obtained from the Unit Medical Supply officer.

The dental service of each type of hospital is divided into an operative, prosthetic and oral surgery section and is responsible for routine dental treatment of assigned personnel and any attached personnel as well as nearby line units of battalion strength, or less, who do not have an assigned dental officer.

Patients who will need prolonged treatment are evacuated to a named general hospital specializing in their type of case and as near their home as possible. The named general hospitals have the same dental divisions as the numbered and may have a separate periodontia section. The prosthetic section may be called upon to furnish plastic eye prostheses and tantalum or acrylic resin plates for the neurosurgeon to use in repairing cranial defects.

The original dental equipment and supplies are a part of general hospital medical equipment assemblies. The named general hospitals have the same responsibility as the numbered ones as to who should be treated.

In World War II there was a decided tendency to establish a separate clinic in connection with the plastic maxillofacial wards.

Since the close of World War II, eight general hospitals have been designated by the Surgeon General to conduct a dental intern program. The course of instruction is on a graduate level and is given by the assigned medical and dental staff in conjunction with professional consultants.

Graduates of approved dental schools who are eligible for commissions in the Organized Reserve Corps of the Army may be selected and appointed to serve one year's dental internship while on voluntary active duty as a first lieutenant. If a dental intern successfully completes the year's training, he is awarded a certificate to that effect.

G. Robert McLean

TREATMENT OF CANCER OF THE LIP

James W. Hendrick and Grant E. Ward. J. Internat. Coll. Surgeons 15:7, January, 1951.

Cancer of the lip accounts for approximately 2.3 per cent of all cancers. Its accessibility should facilitate early diagnosis, but it is surprising how frequently this condition is neglected by intelligent patients and how often proper diagnosis and treatment is delayed by the physician. Ninety-five per cent of these cancers occur in the lower lip, and all except four per cent occur in males. Negroes are seldom affected.

Malignant tumors of the lip are of the squamous cell variety and originate at the vermilion border. Any lesion of this area which persists for six to eight weeks should be considered a cancer until proved otherwise. Fissures of the lip, which often appear at the commissures, should be looked upon with suspicion. Persistent fissures, keratosis, papillomas, epithelial warts, and leukoplakic areas should be regarded as premalignant lesions and eradicated.

It must be emphasized that treatment should be instituted only after adequate biopsy has been taken to determine the histologic grade of the tumor. The use of radium has been discontinued in favor of the x-ray. Roentgen therapy is a valuable modality for treating very small shallow lip cancers. Small cancers which do not involve more than one fourth of the lip and are of low grade may be removed simply with surgery. The larger tumors and those of more highly malignant characteristics require extensive surgery, or both roentgen therapy and surgery.

Dissection of the cervical lymph nodes is not carried out as a part of the treatment of all lip cancers. When lymph nodes are not palpable, the diameter of the lesion is less than 3 cm., and the biopsy shows the growth to be of low grade, neck dissection is not advised if the cooperation of the patient can be had for follow-up examinations.

In an over-all evaluation of the treatment of lip cancer, it would appear that it is not radical or thorough enough. This is evidenced by the fact that most carefully followed and reported series of cases show a five year survival of 60 to 75 per cent even though these cancers remain localized above the clavicle, in most instances, and are easily accessible for examination and treatment.

Warren R. Schram

CONTRIBUTIONS OF THE SCHOOL NURSE IN A SCHOOL DENTAL PROGRAM

Emily S. Brown. Am. J. Pub. Health 40: 984, August, 1950.

The school nurse is the pivot about which the dental program is organized. The program functions through the cooperation of the administrator and the teaching staff. Dental programs are initiated, exhibits are planned, speakers obtained, and interest is stimulated to form a dental health council and to obtain dental care for every child.

The school dental program provides a richer opportunity for bringing about character and personality changes in students than is provided in any other phase of health work. School nurses are working to help build attitudes of mind which will lead to better behavior patterns and better physical welfare for the school child. Four cases are reported illustrating improvement in behavior following dental care.

Carlos Weil

The Reader Comments

THE JOURNAL *devotes this section to comment by readers on topics of current interest to dentistry. The editors reserve the right to edit all communications to fit available space and require that all letters be signed. Signatures will be deleted before publication at the request of the author. Printed communications do not necessarily reflect the opinion or official policy of the Association. Your participation in this section is invited.*

The Editor

EXCERPTS FROM A LETTER FROM ISRAEL

I came [to Israel] with the intention of staying only one year but here I am still in the Middle East.

The first few weeks were spent seeing a little of this historic land and then I started working for the government. I was sent to take over the central dental clinic of the southern region. The dental equipment was quite good in comparison with other clinics. For the second half year I was transferred to an administrative job, outfitting and building up all the dental clinics in the region. I had picked up enough of the Hebrew language to be able to carry on a fair conversation with the help of my little "Sabra" assistant. (Sabra is the name of a fruit that grows wild in the country. It has a hard, cactus covering on the outside but is a sweet-tasting fruit. The native born Jews are called Sabras.)

My most exciting experience is when I take a trip down south. It is difficult to recognize the area from month to month, for new settlements are springing up along the roadsides every week, dotting the lands with small, neat bungalows (huts, I should say) with dunams of backyard being cultivated for corn, tomatoes, or what have you. Whenever I go down into the Negev and look at the immense dry hilly expanse of desert, my imagination cannot for the life of me picture how this can be made into an oasis, habitable for people. Yet the experts say that with water and sweat and God's will, this desert can be converted into a place to live for multitudes of people, just as other marsh lands throughout the country were drained and cleaned and made into home sites.

During the past few weeks I have been transferred to the beautiful Telitvinsky Hospital, not far from the throbbing vital city of Tel-Aviv. This hospital was first built by the Americans during World War II as a rest camp for soldiers. It has the latest and best of American equipment in all departments. A stomatological institute is being planned for this hospital and I have been invited to participate in the project.

The Israel Dental Association has started plans to build a dental school as a branch of the Hebrew University in Jerusalem. This is a tremendous task but the need of a dental school is so urgent and only an energetic campaign will succeed in putting this ambitious project over.

The dental journal of the Israel Dental Association, *Refuat Hashinaim*, is under the editorship of Dr. Moshe Mishory, former head of the Israel Army's dental department. The articles are published in the Hebrew language with résumés in English.

I wanted to give you a little picture of what I've been doing here. There is plenty of work to keep me busy and life here is interesting and exciting.

James Springer, D.D.S.

FLUORIDATION PROGRAM

There seems to be a concerted drive to force fluoridation of communal water supplies in various areas. This is causing me great concern and it raises questions in my mind, a few of which I shall cite in the hope that this letter will be published in THE JOURNAL and then, perhaps, some of the questions may get answered.

It is my understanding that the Newburgh-Kingston program was to be one of the pilot studies for determination of beneficial, and deleterious results, if any, of optimum quantities of the fluorine ion in communal water supply. This program has been in operation for five of the 10 years deemed necessary for proper evaluation of the findings. Isn't it premature to use the results of four years of the study, as reported in THE JOURNAL, as the basis for this drive? There is no question but that fluoridated water is beneficial, but when results of continuous use over a period of

10 or 20 years are unknown, shouldn't one be hesitant? Since deleterious effects do not appear until after 10 or 12 years of continuous use, shouldn't we be more hesitant at this stage?

Isn't there a more practical way to give fluorides through pregnancy and through the first eight years of life, and then discontinue its use since it is accepted that the beneficial results are to be obtained by the end of the eighth year of life? Why give it over a longer period?

Won't the publicity given to approval of various groups after an incomplete study such as this set a bad example? Would it not be logical for any of the pharmaceutical houses to flood the market with their products when they are satisfied after incomplete studies that their products may be beneficial, with or without foundation?

Reuben Feltman, D.D.S., Passaic, N. J.

A VALUABLE REVIEW

I thank you for sending to me the June 1951 issue of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION containing an evaluation of dental foci of infection in regard to general disease.

Reviews of this kind when published from time to time are of great value to both physicians and dentists. The one at hand should help in bringing to further fruition a more rational attitude which has gained ground in the past decade. I was pleased to note that the consensus as gathered is in agreement with my views as published in 1940.

Hobart A. Reimann, M.D., Philadelphia

CONGRATULATIONS

If reprints are available of the marvelous work done in the June JOURNAL, I would certainly appreciate one. I have never seen a more comprehensive scholarly piece of work. Congratulations.

Robert J. Zech, D.D.S., Seattle

A VALUABLE CONTRIBUTION

During the past two weeks I have availed myself of the opportunity to study carefully the contents of the June issue of THE JOURNAL. I think the information that has been so painstakingly edited and assembled on the effect of oral foci of infection on health is one of the more valuable contributions of recent years that has been made to the dental literature.

Please accept my sincere congratulations on the completion of an important and difficult job.

Bert W. Gilbert, D.D.S., Madison, Wis.

A DEBT OF GRATITUDE

Just received THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION for June and it is the best ever. To think of the hours and hours of work and reading that had to be put in to be able to publish such an instrument!

The professions owe all of you a debt of gratitude for setting us right on the evaluation of focal infection. Again congratulations.

L. A. Lucas, D.D.S., Oklahoma City

A COMPLIMENT

I wish to compliment you and your associates on the fine issue of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION on focal infection. I am going to try and get excerpts from it printed in our local medical journal, *Philadelphia Medicine*.

Lester Burket, D.D.S., M.D., Philadelphia

FOCAL INFECTION EVALUATION

I wish to take this opportunity to congratulate you on the magnificent job you did in the June issue of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION. I refer, of course, to the focal infection evaluation. It is a most wonderful piece of work for which I feel you and the authors are deserving of the gratitude and commendation of the dental and medical professions. It is my sincere belief that this work should be published as a separate brochure and be made available to all physicians and dentists as an addition to their reference libraries. My sincere thanks for a wonderful contribution.

Sidney I. Kohn, D.D.S., Jersey City, N. J.

Deaths

Allen, Clarence B., Carlisle, Pa.; Dental Department, George Washington University, 1917; died June 30; aged 65.

Ames, Walter C., Smithfield, Va.; College of Dental Surgery, Baltimore, 1896; died July 18.

Arcand, Joseph E., Fall River, Mass.; died June 13; aged 65.

Behring, Herbert S., Chico, Calif., College of Physicians and Surgeons, San Francisco, 1919; died June 21; aged 51.

Bennett, George L., Kansas City, Mo.; Western Dental College, Kansas City, 1912; died July 26; aged 68.

Brekhus, Peter J., Minneapolis; College of Dentistry, University of Minnesota, 1910; died June 29; aged 76.

Brooks, George, Wooster, Ohio; College of Dentistry, University of Iowa, 1898; died June 30; aged 79.

Broudy, Jesse, Flushing, N. Y.; College of Dentistry, New York University, 1932; died July 3; aged 43.

Burlingame, Lewis F., Detroit; College of Dental Surgery, University of Michigan, 1913; died July 12; aged 63.

Burnett, Louis S., St. John, Kan.; Western Dental College, Kansas City, 1923; died June 20; aged 55.

Byington, Chilton E., Signal Mountain, Tenn.; School of Dentistry, Vanderbilt University, 1900; died July 19; aged 76.

Cahill, William D. Y., Danville, Va.; Baltimore College of Dental Surgery, University of Maryland, 1909; died July 8; aged 73.

Carpenter, Lockwood D., Indianola, Iowa; College of Dentistry, University of Iowa, 1901; died June 23; aged 76.

Carroll, Clayton A., Herkimer, N. Y.; School of Dentistry, University of Buffalo, 1901; died June 28; aged 72.

Chance, Arthur W., Portland, Ore.; School of Dentistry, Temple University, 1896; died July 5; aged 78.

Cheek, John H., Terre Haute, Ind.; Indiana Dental College, 1899; died July 19; aged 75.

Clayton, Harry, St. Paul; died June 28; aged 65.

Close, Frank M., White Plains, N. Y.; School of Dentistry, University of Pennsylvania, 1904; died July 13; aged 78.

Cockerille, Samuel J., Washington, D. C.; Dental Department, National University, Washington, D. C., 1882; died June 25; aged 82.

Cole, Delbert L., Bangor, Mich.; Department of Dental Surgery, Detroit College of Medicine, 1902; died July 9; aged 78.

Craig, Clyde C., Lubbock, Texas; School of Dentistry, St. Louis University, 1916; died July 3; aged 60.

Cullom, Walter C., St. Paul; College of Dentistry, University of Minnesota, 1904; died June 17; aged 69.

Cummins, Horace E., Kalamazoo, Mich.; died in July; aged 77.

Diefenderfer, George H., Allentown, Pa.; School of Dentistry, Temple University, 1912; died June 26; aged 59.

Drury, George, Spickard, Mo.; Chicago College of Dental Surgery, Loyola University, 1898; died July 6; aged 74.

Eagle, James W., Keyser, W. Va.; Baltimore College of Dental Surgery, University of Maryland, 1927; died July 7; aged 50.

Edmundson, Joseph W., Athens, Ala.; Atlanta Dental College, 1912; died June 23; aged 67.

Ehle, Nelson H., Minneapolis; Baltimore College of Dental Surgery, University of Maryland, 1892; died July 26; aged 81.

Erb, Benjamin F., Anamosa, Iowa; Ohio College of Dental Surgery, University of Cincinnati, 1889; died June 20; aged 83.

Farrell, Thomas F., Pittsburgh; Pittsburgh Dental College, Western University of Pennsylvania, 1901; died June 17; aged 79.

Fortelka, Charles G., Chicago; Chicago College of Dental Surgery, Loyola University, 1908; died July 23; aged 65.

Freund, Mathilde, Valhalla, N. Y.; School of Oral and Dental Surgery, Columbia University, 1916; died July 18.

Fry, Alva T., Fort Worth; College of Dentistry, Baylor University, 1914; died July 10; aged 62.

Garretson, Arthur V., Danville, Ill.; Illinois School of Dentistry, Chicago, 1900; died July 18; aged 77.

Gautschi, Edward J., New Matamoras, Ohio; Ohio College of Dental Surgery, University of Cincinnati, 1901; died July 9; aged 75.

Givens, Robert I., Pocomoke City, Md.; Baltimore College of Dental Surgery, University of Maryland, 1923; died July 11; aged 52.

Glick, Ernest J., Springfield, Ohio; Ohio College of Dental Surgery, University of Cincinnati, 1912; died July 25; aged 61.

Griffin, Daniel C., North Brookfield, Mass.; Dental Department, Baltimore Medical College, 1906; died July 13; aged 74.

Gunnarson, A. Theodore, Chicago; Dental School, Northwestern University, 1915; died July 24; aged 58.

Hammer, William U., Atlantic, Iowa; College of Dentistry, University of Iowa, 1901; died June 17; aged 78.

Hewey, George A., Washington, D. C.; School of Dentistry, Georgetown University, 1914; died July 21; aged 62.

Hillman, Guy H., Plainfield, N. J.; School of Dentistry, University of Buffalo, 1901; died July 13; aged 72.

Hodges, Lowell B., Arlington, Va.; School of Dentistry, University of Pennsylvania, 1924; died May 20; aged 58.

Hubbard, Herman H., Chicago; College of Dentistry, University of Illinois, 1904; died July 30; aged 72.

Hunter, Marion L., Galveston, Texas; Dental Department, Meharry Medical College, 1927; died July 3; aged 49.

Irish, Thomas S., Kansas City, Mo.; School of Dentistry, Royal College of Dental Surgeons, Toronto, 1887; died July 8; aged 84.

Jones, Ollie O., Shreveport, La.; Atlanta-Southern Dental College, 1919; died July 19; aged 56.

Kellogg, Arthur V., Dallas Center, Iowa; died July 3; aged 74.

Kerr, Edward P., Fowler, Ind.; School of Dentistry, Indiana University, 1929; died July 19; aged 48.

Kohn, Marks, Philadelphia; Pennsylvania College of Dental Surgery, Philadelphia, 1909; died July 16; aged 82.

Kolar, John E., Cicero, Ill.; Chicago College of Dental Surgery, Loyola University, 1913; died July 29; aged 71.

Lancaster, Dwight L. M., Laredo, Texas; Texas Dental College, Houston, 1919; died June 21; aged 54.

Letterman, William G., University City, Mo.; College of Dental Surgery, University of Michigan, 1905; died July 19; aged 72.

Londergan, James P., Dayton, Ohio; College of Dentistry, Ohio State University, 1929; died July 6; aged 47.

Marshall, Vernon O., Breckenridge, Texas; died July 19.

Martinson, James L., Moville, Iowa; died June 14; aged 49.

McClellan, George B., Columbus, Ohio; College of Dentistry, Ohio State University, 1923; died June 25; aged 55.

McGinniss, Vincent M., Philadelphia; School of Dentistry, Temple University, 1934; died July 6; aged 40.

McNamara, Francis J., Seattle; College of Physicians and Surgeons, San Francisco, 1926; died July 20; aged 59.

Meagher, William F., Mattoon, Wis.; Chicago College of Dental Surgery, Loyola University, 1900; died July 1; aged 76.

Mentzer, Edmund H., Philadelphia; Philadelphia Dental College, 1900; died July 10; aged 77.

Miller, Murdock M., Massillon, Ohio; died May 27; aged 59.

Morrow, Roy N., Hackensack, N. J.; School of Dentistry, University of Pennsylvania, 1912; died June 20; aged 63.

Murlless, Charles S., Holyoke, Mass.; died July 13.

Nugent, Clarence C., Branson, Mo.; College of Dentistry, University of Illinois, 1905; died June 26; aged 89.

O'Connell, John P., Highland Park, Ill.; Chicago College of Dental Surgery, Loyola University, 1915; died July 16; aged 61.

Osburn, Miles E., San Antonio, Texas; Louisville College of Dentistry, of Centre College, 1910; died July 20; aged 78.

Ozanick, Victor R., Kenosha, Wis.; Dental School, Marquette University, 1924; died March 26; aged 52.

Peters, George W., Spokane, Wash.; Ohio College of Dental Surgery, University of Cincinnati, 1913; died July 13; aged 65.

Petty, Evan W., Christopher, Ill.; School of Dentistry, Washington University, St. Louis, 1918; died July 17; aged 57.

Pinchback, Leroy, Leesville, La.; School of Dentistry, Tulane University, 1924; died July 9; aged 51.

Pruner, Wiley E., Rockford, Ill.; Indiana Dental College, Indianapolis, 1895; died July 6; aged 77.

Rader, George O., San Francisco; College of Physicians and Surgeons, San Francisco, 1902; died July 5; aged 71.

Regnier, Joseph A., Pittsfield, Mass.; Dental School, Tufts College, 1913; died July 19; aged 63.

Reimers, Arthur J., St. Louis; School of Dentistry, Washington University, St. Louis, 1919; died July 4; aged 56.

Roberts, Charles W., Hartford, Conn.; Philadelphia Dental College, 1900; died July 16; aged 81.

Rothblatt, George, Brookline, Mass.; Dental School, Tufts College, 1918; died July 17; aged 56.

Russell, Robert J., Greensburg, Ind.; School of Dentistry, Indiana University, 1894; died July 7.

Russell, Samuel I., Los Angeles; College of Dentistry, University of Illinois, 1910; died in July; aged 61.

Directory

OFFICERS

Harold W. Oppice, President.....1002 West Wilson Ave., Chicago
LeRoy M. Ennis, President-Elect.....4001 Spruce St., Philadelphia
Edward R. White, First Vice-President.....921 Bergen Ave., Jersey City, N.J.
Alfred W. Chandler, Second Vice-President.....Bureau of Medicine and Surgery
.....Navy Dept., Washington, D.C.
M. F. Jarrell, Third Vice-President.....Box 1986, Alexandria, La.
Percy T. Phillips, Speaker, House of Delegates.....18 E. 48th St., New York
Harold Hillenbrand, Secretary.....222 E. Superior St., Chicago
C. Willard Camalier, Assistant Secretary.....1726 Eye St., N.W., Washington, D.C.
H. B. Washburn, Treasurer.....Lowry Medical Arts Bldg., St. Paul

BOARD OF TRUSTEES

W. Earle Craig, 1953, Third District.....8113 Jenkins Arcade, Pittsburgh
L. H. Jacob, 1953, Eighth District.....Jefferson Bldg., Peoria, Ill.
James E. John, 1953, Fifth District.....Medical Arts Bldg., Roanoke, Va.
Daniel F. Lynch, 1953, Fourth District.....1678 Primrose Road, N.W., Washington, D.C.
Obed H. Moen, 1953, Ninth District.....Watertown, Wis.
J. B. Carr, 1952, Seventh District.....Hume Mansur Bldg., Indianapolis
C. S. Foster, 1952, Tenth District.....Dows Bldg., Cedar Rapids, Iowa
Charles I. Taggart, 1952, First District.....139 Bank St., Burlington, Vt.
Robert P. Thomas, 1952, Sixth District.....Francis Bldg., Louisville, Ky.
William McGill Burns, 1951, Second District.....80 Hanson Place, Brooklyn
R. C. Dalgleish, 1951, Thirteenth District.....State Capitol, Salt Lake City
Willard Ogle, 1951, Twelfth District.....3607 Gaston Ave., Dallas, Texas
Fred S. Shandley, 1951, Eleventh District.....Medical and Dental Bldg., Seattle

BUREAUS

Chemistry: J. Roy Doty, Director, 222 E. Superior St., Chicago
Economic Research and Statistics: B. D. Moen, Director, 222 E. Superior St., Chicago
Library and Indexing Service: Donald A. Washburn, Director, 222 E. Superior St., Chicago
Public Information: Herbert B. Bain, Director, 222 E. Superior St., Chicago

COUNCILS

Constitution and Bylaws: Max E. Ernst, Chm., Lowry Medical Arts Bldg., St. Paul

Dental Education: Henry M. Willits, Chm., Roshek Bldg., Dubuque, Iowa
Shailer A. Peterson, Secy., 222 E. Superior St., Chicago

Dental Health: David W. Brock, Chm., 6026 Enright Ave., St. Louis 12
Allen O. Gruebbel, Secy., 222 E. Superior St., Chicago

Dental Museum and Registry: Henry A. Swanson, Chm., 1726 Eye St., N.W., Washington, D.C.

Dental Research: J. L. T. Appleton, Chm., 4001 Spruce St., Philadelphia
C. B. Hall, Secy., 1835 Eye St., N.W., Washington, D.C.

Dental Therapeutics: Thomas J. Hill, Chm., 2085 Adelbert Road, Cleveland
J. Roy Doty, Secy., 222 E. Superior St., Chicago

Dental Trade and Laboratory Relations: F. W. Herbine, Chm., 230 N. Fifth St., Reading, Pa.
Earl M. Eaton, Secy., American Trust Bldg., Cedar Rapids, Iowa

Federal Dental Services: R. H. Friedrich, Chm., 960 Park Ave., Plainfield, N.J.
Hospital Dental Service: Stephen P. Mallett, Chm., 358 Commonwealth Ave., Boston
Insurance: Paul W. Zillmann, Chm., 29 Walden Ave., Buffalo
International Relations: Stanley D. Tylman, Chm., 55 E. Washington St., Chicago
Journalism: Charles A. Wilkie, Chm., 1 Hanson Place, Brooklyn
Judicial Council: Ernest G. Sloman, Chm., 344 14th St., San Francisco
Legislation: E. Harold Gale, Chm., 142 Washington Ave., Albany, N.Y.
Francis J. Garvey, Secy., 222 E. Superior St., Chicago
Membership: H. C. Jarvis, Chm., Mercantile Library Bldg., Cincinnati
National Board of Dental Examiners: Thomas M. Birkbeck, Chm., Milton, Ore.
Shailer A. Peterson, Secy., 222 E. Superior St., Chicago
Relief: Leo W. Kremer, Chm., 55 E. Washington St., Chicago
M. C. Hansen, Secy., Racine, Wis.
Scientific Session: William A. Garrett, Chm., Candler Bldg., Atlanta, Ga.
Robert G. Kesel, Secy., 808 S. Wood St., Chicago

ADVISORY COMMITTEES

Bureau of Chemistry: Philip Jay, Chm., 715 S. Forest Ave., Ann Arbor, Mich.
Bureau of Economic Research and Statistics: L. M. FitzGerald, Chm., Roshek Bldg., Dubuque, Iowa
Bureau of Library and Indexing Service: John E. Gurley, Chm., 350 Post St., San Francisco
Bureau of Public Information: C. H. Jamieson, Chm., David Whitney Bldg., Detroit

SECTION CHAIRMEN

Clinics: Marcus H. Burton, 1149 16th St., N.W., Washington, D.C.
Dental Public Health: Carl L. Sebelius, Department of Public Health, Nashville, Tenn.
Full Denture Prosthesis: B. W. Oesterling, U.S. Naval Dental School, N.N.M.C., Bethesda, Md.
Operative Dentistry: Rex Ingraham, 122 E. Sixteenth St., Los Angeles
Oral Surgery: James R. Cameron, 269 S. Nineteenth St., Philadelphia 3
Orthodontics: J. William Adams, 1121 W. Michigan St., Indianapolis
Partial Denture Prosthesis: Paul A. Edmand, 55 E. Washington St., Chicago
Pedodontics and Oral Hygiene: George W. Teuscher, 311 E. Chicago Ave., Chicago 11
Periodontia: Roy O. Elam, 605 Medical Arts Bldg., Nashville, Tenn.
Practice Management: Cecil H. Bliss, 503 Fifth St., Sioux City, Iowa
Research: Helmut A. Zander, Tufts College Dental School, 136 Harrison Ave., Boston
Roentgenology: L. R. Main, 3556 Caroline St., St. Louis
Scientific Exhibits: J. M. Wisan, Veterans Administration Hospital, Brooklyn

THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION
222 East Superior Street, Chicago 11, Illinois
WHitehall 4-6730

LON W. MORREY, *Editor* JOHN J. HOLLISTER, *Business Manager*

All expressions of opinions and all statements of supposed facts are published on the authority of the writer over whose signature they appear, and are not to be regarded as expressing the views of the American Dental Association, unless such statements or opinions have been adopted by the Association. *Articles* are accepted with the understanding that they have not been published previously and that they are submitted solely to THE JOURNAL. *Advertising copy* must conform to the official standards established by the American Dental Association. *Notice of change of address* should be received one month before the change is to be effective. *Orders for reprints of* JOURNAL articles must be received by the Business Manager's office not later than the 15th of the month of issue in order to secure advantage of the lowest possible prices. Orders received after this date are subject to special quotation.

Announcements

MEETINGS OF THE AMERICAN DENTAL ASSOCIATION

Ninety-Second Annual Session	Oct. 15-18, 1951	Washington, D. C.
Ninety-Third Annual Session	Sept. 8-11, 1952	St. Louis
Ninety-Fourth Annual Session	Sept. 28-Oct. 1, 1953	Cleveland

MEETINGS OF STATE SOCIETIES

State	Date	Place	Secretary	Address
Alabama	Apr. 14, 15, 1952	Birmingham	G. W. Matthews	1922 Tenth Ave., S., Birmingham 5
Alaska	July 14-17, 1952	Anchorage	R. A. Smithson	Anchorage
Arizona		Phoenix	E. M. Scott	1017 Professional Bldg., Phoenix
Arkansas		Little Rock	D. M. Hamm	White Bldg., Clarksville
California	Apr. 21-23, 1952	San Francisco	L. R. Ludwigsen	450 Sutter St., San Francisco
S. California			C. A. Moss	1401 S. Hope St., Los Angeles
Colorado	Sept. 30-Oct. 3	Colorado Springs	R. A. Downs	724 Republic Bldg., Denver 2
Connecticut	May, 1952	Bridgeport	E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware	Jan. 1952		S. J. Krygier	309 S. State St., Dover
District of Columbia	Mar. 9-12, 1952	Washington	K. H. Wood	202-1835 Eye St., N. W., Washington
Florida	Apr. 20-23, 1952	Jacksonville	T. A. Price	808 Congress Bldg., Miami
Georgia			J. M. Heard, Jr.	Persons Bldg., Macon
Hawaii			J. H. Dawe	810 N. Vineyard St., Honolulu 17
Idaho			H. M. Klaaren	Breier Bldg., Lewiston
Illinois	May 19-22, 1952	Springfield	P. W. Clopper	623 Jefferson Bldg., Peoria 2
Indiana	May 12-14, 1952	Indianapolis	E. E. Ewbank	Kingman
Iowa	May 5-7, 1952	Des Moines	H. I. Wilson	639 Insurance Exchange Bldg., Des Moines
Kansas	May 4-7, 1952	Topeka	F. A. Richmond	Brotherhood Bldg., Kansas City
Kentucky	Mar. 31-Apr. 2, 1952	Louisville	A. B. Coxwell	1976 Douglas Blvd., Louisville
Louisiana	Apr. 17-19, 1952	Shreveport	J. S. Bernhard	407 Medical Arts Bldg., Shreveport
Maine	June, 1952	Rockland	S. Gower	Skowhegan
Maryland	May 4-7, 1952	Baltimore	E. L. Pesnagno, Jr.	415 Medical Arts Bldg., Baltimore 1
Massachusetts	May 4-7, 1952	Boston	H. E. Tingley	12 Bay State Road, Boston
Michigan	Apr. 21-23, 1952	Detroit	F. Wertheimer	Michigan Dept. of Health, Lansing
Minnesota	Feb. 18-20, 1952	St. Paul	C. V. E. Cassel	242 Lowry Medical Arts Bldg., St. Paul
Mississippi			H. M. Campbell	428 Gloster St., Tupelo
Missouri	Sept. 12, 1952	St. Louis	R. R. Rhoades	201 Merchants Bank Bldg., Jefferson City
Montana	May 1-3, 1952	Butte	C. S. Renouard	304 Phoenix Bldg., Butte
Nebraska	May 12-14, 1952	Omaha	F. A. Pierson	1112 Federal Securities Bldg., Lincoln
Nevada	June, 1952	Reno	R. La Fond	Medical Dental Bldg., Reno
New Hampshire	June 29-July 1, 1952	Bretton Woods	F. E. Williams	814 Elm St., Manchester
New Jersey	Apr. 23-25, 1952	Atlantic City	J. G. Carr	407 Cooper St., Camden
New Mexico			J. S. Eilar	Suite 7, Medical Arts Square, Albuquerque
New York	May 12-15, 1952	Syracuse	C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina	May 11-14, 1952	Pinehurst	B. N. Walker	Liberty Life Bldg., Charlotte
North Dakota		Minot	J. H. Lunday	302 Black Bldg., Fargo
Ohio	Nov. 25-28	Cleveland	E. G. Jones	185 E. State St., Columbus
Oklahoma	Apr. 20-23, 1952	Oklahoma City	R. C. Calkin	Calkin Bldg., Guthrie
Oregon	Mar. 3-5, 1952	Portland	H. C. Fixott, Jr.	308 Selling Bldg., Portland
Panama Canal Zone	Dec.	Balboa	O. Slavin	Box 415, Balboa
Pennsylvania			M. D. Zimmerman	217 State St., Harrisburg
Puerto Rico	Jan. 1952	San Juan	R. Carrasquillo	Box 214, Rio Piedras
Rhode Island	Jan. 1952	Providence	M. L. Biderman	144 Westminster St., Providence
South Carolina		Greenville	J. R. Owings	7 Medical Court, Greenville
South Dakota	May 18-20, 1952	Mitchell	E. W. Elmen	Sioux Falls
Tennessee	May 5-7, 1952	Memphis	W. L. McCulley	Brown Bldg., Cleveland

State	Date	Place	Secretary	Address
Texas	Apr. 28-May 1, 1952	Fort Worth	W. Ogle	3607 Gaston Ave., Dallas
Utah			E. O. Thompson	915 Medical Arts Bldg. Salt Lake City
Vermont	May, 1952	Woodstock	W. J. Reardon	Rutland
Virginia	Apr. 28-30, 1952	Virginia Beach	J. E. John	804 Medical Arts Bldg., Roanoke
Washington	May 15-17, 1952	Seattle	C. R. Flood	230 Cobb Bldg., Seattle
West Virginia	July, 1952	White Sulphur Springs	A. B. Drake	508 West Virginia Bldg., Huntington 1
Wisconsin	Apr. 14-17, 1952	Milwaukee	R. A. Mason	964 N. 27th St., Milwaukee
Wyoming		Casper	T. J. Drew	State Capitol Bldg., Cheyenne

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

State	Date	Place	Secretary	Address
Alabama	June 16, 1952	Birmingham	M. D. Edwards	132 Adams Ave., Montgomery
Alaska	July 7-11, 1952	Anchorage	J. H. Geyer	P. O. Box 915, Juneau
Arizona			R. K. Trueblood	25 N. Second Av., Glendale
Arkansas	June 23-26, 1952		H. O. Weatherly	205 Halter Bldg., Conway
California			K. I. Nesbitt	507 Polk St., San Francisco 2
Colorado	June 23-27, 1952	Denver	C. K. Phillips	724 Republic Bldg., Denver 2
Connecticut	Nov. 6-10*	Hartford	C. G. Brooks	302 State St., New London
Delaware			P. K. Musselman	143 W. Main St., Newark
District of Columbia			W. M. Falls	1801 Eye St., N. W., Washington 6
Florida	July 7-12, 1952*	Jacksonville	A. W. Kellner	P. O. Box 155, Hollywood
Georgia			S. H. Yarbrough	Medical Arts Bldg., Columbus
Hawaii			H. L. Houvener	427 Dillingham Bldg., Honolulu
Idaho			W. K. Adams	718 Arthur St., Caldwell
Illinois	Nov. 6-9*	Chicago	W. A. McKee	503 Wood Bldg., Benton
Indiana	Nov. 12-15*	Indianapolis	C. A. Frech	504 Broadway, Gary
Iowa			H. M. Willits	719 Roshek Bldg., Dubuque
Kansas			G. L. Teall	Box 71, Hiawatha
Kentucky			R. I. Todd	Western Union Bldg. Richmond
Louisiana			A. R. deNux	Marksville
Maine			R. A. Derbyshire	Box 387, Skowhegan
Maryland	Nov. 5-7	Baltimore	H. Levin	3429 Park Heights Ave., Baltimore 15
Massachusetts			J. C. Wilson	State House, Boston 33
Michigan	Jan. 27-Feb. 2, 1952 June 8-14, 1952	Ann Arbor	J. L. Champagne	3714 W. McNichols Road, Detroit 21
Minnesota			F. A. Larson	1632 Washington St., N.E., Minneapolis
Mississippi	Jan. 7, 1952	Jackson	J. C. Boswell	508 Lamar Life Bldg., Jackson
Missouri			R. R. Rhoades	Central Trust Bldg., Jefferson City
Montana			P. M. Feda	Box 865, Helena
Nebraska			C. A. Bumstead	924 Stuart Bldg., Lincoln
Nevada			G. C. Steinmiller	Masonic Temple, Reno
New Hampshire			J. B. Brown	5 N. State St., Concord
New Jersey			W. A. Wilson	150 E. State St., Trenton 8
New Mexico			J. J. Clarke, Sr.	Artesia
New York			D. W. Beier	23 S. Pearl St., Albany 7
North Carolina			F. O. Alford	1109 Liberty Life Bldg., Charlotte 2
North Dakota			A. B. Crabtree	Ellendale
Ohio	Oct. 22-27	Columbus	H. B. Smith	322 E. State St. ,Columbus
Oklahoma			J. B. Cole, Jr.	706 Asp, Norman
Oregon	Dec. 3-6*	Portland	A. F. Davis	306 Public Service Bldg., Portland
Pennsylvania	Dec. 3-5§ Dec. 6-8** Dec. 8††	Philadelphia	R. E. V. Miller	Northampton National Bank Bldg., Easton
Puerto Rico		Santurce	L. C. Coll	Box 3717, Santurce
Rhode Island			F. M. Hackett	267 Academy Ave., Providence
South Carolina			E. G. Bumgardner	1517 Hampton St., Columbia
South Dakota			K. A. Stormo	Lead
Tennessee			F. S. Maxey	804 Bennie Dillon Bldg., Nashville 3
Texas			R. T. Weber	312 Capital National Bank Bldg., Austin
Utah			J. J. Dalpias	Helper

*Dentistry and dental hygiene.
**Dental clinical examinations.
§Dental and dental hygiene written examinations.
††Dental hygiene clinical examinations.

State	Date	Place	Secretary	Address
Vermont			F. A. Reid	Windsor
Virginia			J. M. Hughes	715 Medical Arts Bldg., Richmond 19
Washington			J. B. Kiefer, Jr.	510 Cobb Bldg., Seattle
West Virginia	June 23-25, 1952	West Liberty	C. A. Laughlin	613 Prunty Bldg., Clarksburg
Wisconsin			S. F. Donovan	Tomah
Wyoming			W. J. Ryan	208 Boyd Bldg., Cheyenne

MEETINGS OF OTHER ORGANIZATIONS

Name	Date	Place	Secy. or Chm.	Address
Academy of Denture Prosthetics	Mar. 16-22, 1952	New Orleans	I. L. Furnas Secy.	928 Silverado St., La Jolla, Calif.
American Academy of Dental Medicine	Dec. 2	New York	W. M. Greenhut Secy.	124 E. 84th St., New York 28
American Academy of Periodontology	Oct. 11-13	Washington, D. C.	C. E. Chamberlain Secy.	115 North St., Peoria, Ill.
American Association of Dental Examiners	Oct. 12, 13	Washington, D. C.	C. A. Bumstead Secy.	924 Stuart Bldg., Lincoln, Neb.
American Board of Oral Pathology	Oct. 15	Washington, D. C.	J. L. Bernier Secy.	Armed Forces Institute of Pathology Washington 25, D. C.
American Dental Assistants Association	Oct. 15-18	Washington, D. C.	M. L. Martin Exec. Secy.	410 First National Bank Bldg., LaPorte, Ind.
American Denture Society	Oct. 13, 14	Washington, D. C.	A. L. Roberts Secy.	Aurora National Bank Bldg., Aurora, Ill.
American Public Health Association	Oct. 29-Nov. 2	San Francisco	R. M. Atwater Exec. Secy.	1790 Broadway, New York 19
American Society for the Advancement of General Anesthesia in Dentistry	Oct. 22	New York	M. H. Feldman Exec. Secy.	730 Fifth Ave., New York
American Society of Dentistry for Children	Oct. 12-14	Washington, D. C.	M. Keiner Program Chm.	1930 Chestnut St., Philadelphia 3
Chicago Dental Society	Feb. 4-7, 1952	Chicago	K. S. Richardson Exec. Secy.	30 N. Michigan Ave., Chicago
Council on Dental Education, Division of Aptitude Testing	Oct. 26, 27		S. A. Peterson Secy.	222 E. Superior St., Chicago 11
Denver Dental Association	Jan. 6-9, 1952	Denver	W. L. Ginsburg Exec. Com.	827 Republic Bldg., Denver 2
Great Lakes Society of Orthodontists	Nov. 5-7	Cleveland	C. R. Anderson Secy.	402 Loraine Bldg., Grand Rapids, Mich.
Greater New York Dental Meeting	Dec. 3-7	New York	S. G. Standard Gen. Chm.	Room 106A, Statler Hotel, New York 1
Greater Philadelphia	Jan. 30-Feb. 1, 1952	Philadelphia	R. Adams Secy.	1411 Walnut Street Bldg., Philadelphia 2
Journees Dentaires de Paris, International Congress	Nov. 21-25	Paris, France	R. Rolland Secy. Gen.	15, Boulevard Malesherbes, Paris VIII, France
Midcontinent Dental Congress	Nov. 25-28	St. Louis	J. E. Brophy Exec. Secy.	927 Syndicate Trust Bldg., St. Louis 1
National Board of Dental Examiners	Dec. 3, 4		S. A. Peterson Secy.	222 E. Superior St., Chicago 11
New Orleans Dental Conference	Nov. 11-14	New Orleans	M. R. Matta Secy.	629 Maison Blanche Bldg., New Orleans
Rocky Mountain Society of Orthodontists	Nov. 5, 6	Denver	D. V. Benkendorf Secy.	932 Metropolitan Bldg., Denver 2
Thomas P. Hinman Mid-Winter Clinic	Mar. 23-26, 1952	Atlanta, Ga.	R. D. Robinson Gen. Chm.	832 Candler Bldg., Atlanta, Ga.
Twelfth Congress of French Stomatology	Oct.	Paris, France	P. Friez Secy.	42 Rue Notre-Dame-des-Champs, Paris VI, France

Announcing

National Board Examinations

December 3 - 4, 1951
(Applications must be received by Nov. 4, 1951)

April 7 - 8, 1952
(Applications must be received by March 8, 1952)

States and Agencies that recognize National Board Certificate

ALABAMA	MISSOURI
ARIZONA	NEBRASKA
CONNECTICUT	NEVADA
ILLINOIS	NEW HAMPSHIRE
INDIANA	NEW MEXICO
IOWA	OKLAHOMA
KANSAS	OREGON
KENTUCKY	PENNSYLVANIA
LOUISIANA	RHODE ISLAND
MAINE	SOUTH DAKOTA
MARYLAND	VERMONT
MASSACHUSETTS	VIRGINIA
MICHIGAN	U. S. PUBLIC HEALTH
MINNESOTA	U. S. ARMY

Circulars of information describing the National Board Examiners may be obtained by writing:

Council of the National Board of Dental Examiners
AMERICAN DENTAL ASSOCIATION
222 EAST SUPERIOR ST. · CHICAGO 11, ILLINOIS

Baker Precision attachments are engineered for extremely simple adjustment. *Uniform* tension against walls of the abutment box is easily obtained by use of an ordinary pen knife blade. Made of Orthoclasp #2 with its very high fusing point (2732°F) and a Brinell of 245. Continued adjustment of these attachments is unnecessary. You can solder or cast against them with definite assurance that *the boxes will not warp!*

Three sizes are available for Anterior, Bicuspid and Molar. If paralleling mandrels are required, state when ordering.

The efficiency of the Baker Split Pin Denture Attachments has been proven over many years of excellent mouth service. They are supplied in 14 or 16 gauge —mandrels are included.

For the finest golds you can use, we recommend Baker Chicago #4 yellow casting gold and Baker 14% for platinum-color gold cases. If your dealer does not handle Baker golds, write us directly.

NO WARPAGE!

when soldering or casting against boxes . . .

BAKER PRECISION ATTACHMENTS

SEND FOR DESCRIPTIVE LITERATURE

BAKER & CO., INC.

850 PASSAIC AVENUE • EAST NEWARK, N. J.

BAKER

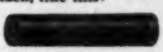
It stands to reason:

Cigarettes are less irritating when filtered this way!

If you smoke, try a Denicotea Holder. *See for yourself* why it has become the largest selling cigarette holder in the world.

First, look at the filter before use. It's pure white—like this:

Then, look at the filter after you've smoked a package of cigarettes. It has turned black, like this:



Yes, it has absorbed nicotine and tars that have been *filtered out* of your cigarettes, whether they're regular or filter-type cigarettes!

Obviously, irritants trapped in the Denicotea crystal filter *can't reach, can't harm* throat, sinuses, gums . . . can't stain teeth!

PROFESSIONAL ½ PRICE INTRODUCTORY OFFER:

Send for your Denicotea Holder, **$1.25** postpaid, (regular price, $2.50)

Longer, Lady Denicotea Holder, **$1.75** postpaid, (regular price, $3.50)

Write to Alfred Dunhill, Dept. D-10
660 Fifth Avenue, New York 19

dunhill

DE·NICOTEA

FILTER **HOLDER**

Dentists Acclaim

FASHION SEAL

DURA-PROVEN

PROFESSIONAL JACKETS AND SHIRTS

No. 293
BARRY

. . . always neat . . . always fresh . . . all ways best

because they're precision tailored of

POROUS NYLON

(It Bre-e-eathes!)

Thousands upon thousands of users prove that there are no finer garments for professional men whose office jackets must always be fresh and crisp-looking. And it's so easy to keep them that way! Just a quick wash and hang to dry. In an amazingly short time they're ready to wear—with no pressing needed. And YOU'LL SAVE UP TO $50 A YEAR on rental and laundry costs!

So ask your local uniform dealer about Fashion Seal garments of ULTRA-NYL—get the best and save money too! Or, for the name of your nearest Fashion Seal dealer, write

FASHION SEAL UNIFORMS
Dept. D, 175 Fifth Ave., New York

A Choice of Three

3 POSTURE COMFORT CHAIRS

MODEL 1050

MODEL 1050A

MODEL 135

Send for FREE Booklet

The Model 1050 Posture Comfort Chair is a standard model used by the majority of dentists. Model 1050-A is the same as Model 1050 except that the saddle seat affords greater leg room comfort for the tall slender dentist — Supplied only on special order. Model 135 is the same as Model 1050 without the lateral body support. *Take your choice* — Select the model that suits you best. Now you can operate in the seated position with complete mobility . . . confidence and comfort. Order from your dealer today or write:

CHILDS MANUFACTURING COMPANY
Macon, Georgia

GOOD NUTRITION

l-e-n-g-t-h-e-n-s the Span of Health!

A longer *health* span, not merely a longer *life* span, is the goal of every adult. A recent authoritative article reviews nutrition problems in relation to aging.* Among the many essentials of good nutrition covered by the article are the amounts and kinds of food needed by older persons.

We are reminded that total energy requirements decrease with advancing years. The needs for certain food nutrients, on the other hand, are thought by some to *increase* even above those of earlier adult years. Thus, critical selection of foods which yield the maximum in nutrients for minimum return in calories becomes particularly important. Protein and calcium are frequently deficient in the diets of older persons. Failure of such persons to consume adequate amounts of dairy foods is a major factor in creating these deficiencies.

The article points out that: "Milk is not only a valuable source of protein but also a major source of calcium. . . . There is no reason whatever why the usual protein foods, such as milk products, cannot be employed to maintain adequate protein intake. . . . The major food sources of calcium are milk, cheese, ice cream, green vegetables, and legumes."*

In the main these generalizations for aging persons are in line with recently published findings of dietary studies and balance experiments on groups of older women.**

Long established dietary habits have a far-reaching effect on the nutrition of the aged. Certain foods are often routinely omitted because they are difficult to prepare or to eat. Dairy products, because they are liquid or relatively soft in consistency and can be used without preparation, lend themselves to the special needs of older persons.

*Stieglitz, E. J. *Nutrition problems of geriatric medicine.* J. Am. Med. Assn. *142*:1070 (April 8) 1950.

**Ohlson, M. A., Jackson, L., Boek, J., Cederquist, D. C., Brewer, W. D., and Brown, E. G. *Nutrition and dietary habits of aging women.* Am. J. Public Health *40*:1161 (Sept.) 1950.

The presence of this seal indicates that all nutrition statements in the advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

National DAIRY COUNCIL
111 N. Canal St., Chicago 6, Illinois

Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and education to extend the use of dairy products.

Lippincott Selected Professional Books

for the MODERN DENTIST

SUCCESSFUL DENTAL PRACTICE, 1

by J. Lewis Bluss, D.D.S., Ph.G.

"It is impossible in a brief review to supply an adequate idea of the importance of this book. *Successful Dental Practice* is characterized by truth and dignity, and it is unqualifiedly recommended as a major contribution to the betterment of mankind."—JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

1st Edition, 1947, 221 Pages
42 Illustrations, 20 Drawings by Jean McConnell **$5.00**

ORAL MEDICINE, 2

by Lester W. Burket, D.D.S., M.D.

". . . certain of an important place in dental literature, as a milestone on the road to complete integration of the health services."—DENTAL RADIOGRAPHY AND PHOTOGRAPHY.

1st Edition, 1946 674 Pages, 350 Illustrations **$12.00**

LIPPINCOTT'S HANDBOOK OF DENTAL PRACTICE, 3

Edited by Louis I. Grossman, D.D.S., Dr. med. dent.

"The *Handbook of Dental Practice* is a fine reference volume and should be in every dentist's library."—JOURNAL OF DENTAL MEDICINE.

New Edition in Preparation

IN THE DENTIST'S OFFICE, 4

by G. Archanna Morrison

"This book should serve as a constant reference and a guide for dental office personnel."—JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

1st Edition, 1948,
242 Pages, 32 Illustrations by Jean McConnell **$3.00**

PRINCIPLES OF ORTHODONTICS, 5

by J. A. Salzmann, D.D.S., F.A.P.H.A.

"This publication is a meritorious contribution to the literature of orthodontics."—JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

2nd Edition, 1950 887 Pages, 533 Illustrations **$15.00**

APPLIED ANATOMY OF THE HEAD AND NECK, 6

by Harry H. Shapiro, D.M.D.

"The book on the whole is valuable to both undergraduate students and practitioners as a background for the use of anatomy as a basis for diagnosis and treatment."—DENTAL WORLD.

2nd Edition, 1947 303 Pages, 221 Illustrations **$10.00**

ACRYLICS, 7

by Stanley D. Tylman, M.D., D.D.S., and Floyd A. Peyton, D.Sc.

"This book should be in the library of every dental practitioner both as a textbook and reference work."—JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

1st Edition, 1946 480 Pages, 440 Illustrations **$10.00**

SURGICAL PATHOLOGY OF THE MOUTH, 8

by E. Wilfred Fish, C.B.E., M.D.

A detailed work on dental pathology which is truly clinical. Cell growth, chemotherapy, pathology of bone, cementum, pulpless tooth, mucosa, peridontal tissue, etc., are covered.

1st American Edition, 1951
463 Pages, 236 Illustrations **$10.00**

COLOR ATLAS OF PATHOLOGY, 9

Prepared under the auspices of the U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland.

A milestone in modern scientific publishing. Provides a guide for interpreting gross and microscopic findings.

1st Edition, 1950
546 Pages, 1,053 Illustrations in full color **$20.00**

Lippincott Books

Philadelphia • London • Montreal

J. B. LIPPINCOTT COMPANY,
East Washington Square, Philadelphia 5, Penna.

Please enter my order and send me the books I have circled below.

1 2 3 4 5 6 7 8 9

Name_____

Address_____ ☐ Cash Enclosed_____

City_____ Zone____ State ☐ Charge my Account_____

Safety First!

NOW, REMOTE CONTROL GAS HEATERS ASSURE CLEAR SWITCHES FOR SAFE OPERATION OF TRAINS . . .

Latest safety development in railroading is the remote-control gas heater on switches to make sure that ice and snow don't lock the switch in one position. No longer is this vital accident protection left to a bundled up trainman with a lighted torch. Now... a dispatcher from a control point many miles away starts the heaters by turning a control switch.

IN A LOCAL ANESTHETIC, TOO . . .

Safety Is the first consideration!

THE SAFETY of each tube of Monocaine Local Anesthetic is assured, not by remote control, but by meticulous care in preparation.

YES . . . WHEN YOU INJECT an anesthetic solution to bring your patients blessed relief from pain, you want to be sure that you are protecting the health — and very life of the patient — by using a *safe* local anesthetic! Monocaine solution 2ME produces anesthesia as deep as procaine 4%, yet its toxicity is appreciably less than that concentration of procaine.

MONOCAINE FORMULA **2ME**
THE "SAFETY FIRST" LOCAL ANESTHETIC

MONOCAINE Formula 2ME was specifically developed for those cases in which anesthesia is difficult to obtain. While Monocaine 1½% is recommended for routine use, Monocaine Formula 2ME will be found to be particularly advantageous for jacket crown work, pulp extirpation and the preparation of bridge abutments.

Accepted
AMERICAN DENTAL ASSOCIATION

NOVOCOL CHEMICAL MFG. CO., INC.
291-23 Atlantic Ave. Brooklyn 7, N.Y.

Monocaine is the registered trade mark of the Novocol Chemical Mfg. Co., Inc.

SAFE EFFECTIVE

GERMICIDAL SOLUTION

ONLY 16¼¢ PINT

Accepted

COUNCIL on DENTAL THERAPEUTICS

AMERICAN DENTAL ASSOCIATION

Parker's

GERMICIDAL TABLETS

Just two Parker's Germicidal tablets dropped in a pint of water and stirred, quickly disintegrate to produce a 1:1000 solution of stable, active germicidal solution—A.D.A. accepted. Then, instruments need only to be washed free of pus, blood, protein material or soap and immersed for 15 minutes in the germicidal solution for safe chemical disinfection.

Heat sterilization—not chemical disinfection—is indicated on all hypodermic needles and instruments that are hinged, have deep narrow crevices, or surfaces with difficult access, or are suspected of having been contaminated with spores or Mycobacterium tuberculosis.

- **ECONOMICAL**—Two tablets make one pint of germicidal solution costing 16¼c.
- **TIME SAVER**—No bulky bottles of liquid to store—or to pour.
- **NON-CORROSIVE**—No anti-rust tablets necessary.
- **NON-TOXIC, NON-IRRITATING**—Makes an excellent hand sanitizing rinse for use between patients, or for the cleaning and disinfection of head rests, arm rests, bowls, cabinet drawers, etc.

Bottles of 80 Tablets (Equivalent to 5 gallons of solution) **$6.50**

Mfd. by R. J. Parker Co., [illegible], Pa.
Distributed by
R. G. Hatch Co., [illegible], N. Y.

THE MEDICAL PROTECTIVE COMPANY

FORT WAYNE, INDIANA

Professional Protection Exclusively since 1899

GOOD-GOODS

IN A SMALL PACKAGE

ALUMINUM SHELLS EMBRACE SO MANY ADVANTAGES IN SO SMALL A "GADGET"

KING'S

UTILITY CASE (100) ILLUSTRATED $6.75

BOX OF 20 $1.50

ANY ASSORTMENT OR ALL ONE SIZE

Saves time and irritation for you and the patient when temporary protection of tooth or cavity is essential.

(a) They conform to any articulation and are necessary in **(b)** crown and bridge work and **(c)** protecting inlays. They protect **(d)** cavity preparation and **(e)** medication and withstand that **(f)** EXTRA PRESSURE desired when plastic filling material is used.

One of King's 200 Products

KING'S SPECIALTY COMPANY

Fort Wayne, Ind.

...IN THE

CUTWELL DIAMOND INSTRUMENT

★ ★ ★ *Economy Assortment*

Here is a worth-while inducement for you to discover for yourself the superior cutting efficiency and durability of R&R Cutwell TRIBOND Diamond Instruments. For in addition to any selection of six instruments you order at the money-saving half-dozen rate, you can obtain FREE any additional instrument of your choice from the comprehensive Cutwell line, no matter what its regular price!

Take the first opportunity to look over the wide range of types and sizes of instruments available, so you can make your own selection and take advantage of this generous "get-acquainted" offer. The handy instrument holder is included.

THE RANSOM & RANDOLPH CO.

TOLEDO, OHIO

CLASSIFIED ADVERTISING

Forms close on 25th of second month preceding month of issue

Remittance Must Accompany Classified Ads.

Advertisements cost $3.50 not exceeding 30 words, additional words 10c each. Commercial agency advertisements, $3.50 for 20 words, additional words 13c each. Publisher reserves the right to determine classification. An extra fee of 25c is charged advertisers who have answers sent care of A.D.A. and in such cases we do not furnish name or address to inquirers. This rate applies for each insertion.

PRACTICES AND OFFICES FOR SALE

COLORADO—Two-chair dental office in industrial city. Excellent practice, good location; low rent. Owner retiring. Address A.D.A. Box 78.

•

CONNECTICUT—West Hartford practice or deluxe two-year old Ivory Ritter units, motor chairs, American mobile cabinets, Nargraf, etc. Direct replies to Major Leo Eff, East Quogue, New York.

•

GEORGIA—For sale due to death. Complete three-chair office and laboratory. Practice established 18 years. Direct replies to Mr. Jerry Fendley, Technician, 269½ N. Lumpkin, Athens, Georgia.

•

ILLINOIS—For sale due to death. East central Illinois practice; office established 35 years. Direct inquiries to Mrs. A. V. Garretson, 404 N. Vermillion Street, Danville, Illinois.

•

MICHIGAN—For sale due to death. Two-chair office, one new Ritter Motor Chair. Reasonable rental. Direct replies to Mrs. John Donovan, 122 W. May Street, Belding, Michigan.

•

NEBRASKA—Old established practice. Fully equipped new office building and home on same lot. Four-town territory. Cream equipment, Ritter x-ray, Maple furniture. Direct replies to Dr. C. M. Totman, Elmwood, Nebraska.

•

OHIO—For sale due to death. Completely equipped dental office in Cambridge. Excellent location; 16,000 population. Low rent. Price, $2000. Direct replies to Mrs. R. G. Pfaadt, Edgeworth Avenue, Cambridge, Ohio.

•

OHIO—Established practice of 52 years in prosperous community of 2,500 near Toledo. Includes 3-bedroom residence adjoining office, complete lab. Low taxes, automatic g.h.w., heat, utilities. Direct replies to Mr. Allen Ludwig, Gibsonburg, Ohio.

LOCATIONS AVAILABLE

FLORIDA—Bungalow office, two operating rooms, business office and reception room, completely air conditioned. Will sell or lease. Thriving practice. Direct replies to Dr. John N. Pickron, 3412 Tampa Street, Tampa, Florida.

•

MASSACHUSETTS—Front office suite in a new building. Ideally suited for a dentist. Lovely college town. Direct replies to Gerald F. Hogan, M.D., 71 N. Pleasant Street, Amherst, Mass.

•

NEW YORK—Fully equipped, beautiful office in well-known hotel on Central Park South in New York. Excellent address and convenient location. Two days a week, more later if desired. Direct replies to Dr. Jacques Kirsch, 160 Central Park South, New York, New York.

NEW YORK—Eastern Long Island, substantial ten room home for sale. 2½ baths, eight room bungalow office building. Ritter equipped. Suitable terms; serious inquires only. Address A.D.A. Box 47.

•

NEW YORK—Doctor's home and 4-room furnished office with two-car garage, large lot for sale in resort village, northern New York; excellent opportunity for a dentist. Direct inquiries to Mrs. L. L. Samson, Alexandria Bay, New York.

•

PENNSYLVANIA—Front suite of offices available on Main Street. Former dentist occupied same location for 15 years. Direct inquiries to Mr. Max. Besbris, 600 Centre Street, Freeland, Pa.

•

WISCONSIN—Office space with physician and optometrist for rent. Formerly occupied by dentist. Located in growing community of 4500; reasonable rent. Direct inquiries to Box 29, Reedsburg, Wisconsin.

OPPORTUNITIES AVAILABLE

CALIFORNIA—Dentist desires associate in general practice. Office located in new bungalow; 3 complete operating rooms. Reasonable monthly rental of office space and equipment. Details of professional background required. Direct replies to Dr. Vernon L. Gilman, 2803 Thirty-third Street, Sacramento, California.

•

CANADA—Dentists wanted for public health work—children's dental program. Salary from $4200 according to experience, plus cost-of-living bonus. Applicants must be graduates of accredited dental school. For details write Medical Health Officer, Box 490, Weyburn, Sask., Canada.

•

MALAYA—Applications are invited for Lectureships in the dental department of the University of Malaya, Singapore in the fields of Orthodontia, Preventive Dentistry, and Prosthetic Dentistry. Dental qualifications and teaching experience essential. Appointments tenable for one to three years with free passage on appointment and termination. Total emoluments—approximately $6,982. Send applications (seven copies) together with three references before October 15, 1951 to the Registrar, University of Malaya, Singapore.

MASSACHUSETTS—Pedodontist or young dentist wanted to associate with dentist in college town. Well established, good clientele; office located in group office building. Security assured for qualified person. Address A.D.A. Box 80.

•

MICHIGAN—Physician and surgeon desires dentist associate. Well located, proven location in central Michigan city. Offices formerly occupied by dentist with large practice. Address A.D.A. Box 88.

•

MICHIGAN—Dentists wanted for civil service positions in Wayne County, Michigan. $5100-$6300 a year for a 40-hour week. Job security, paid vacations, sick leave, automatic salary increases and participation in a liberal retirement program. Direct replies to Wayne County Civil Service Commission, 2200 Cadillac Tower, Detroit 26, Michigan.

•

MICHIGAN—Philanthropic foundation wants dentists under 40 years of age for public health work. Starting salary rate, $4500 per annum. Michigan licensure not required provided the individual is a graduate of an accredited dental school and is licensed in another state. For detailed information write Kenneth R. Gibson, D.D.S., M.S.P.H., Director of Child Health Division, Children's Fund of Michigan, 660 Frederick Street, Detroit 2, Michigan.

•

NEW YORK—Young man wanted for general practice in upstate office. Best equipment. Must be draft exempt. State age, experience and income needed at start. Address A.D.A. Box 81.

•

NORTH DAKOTA—Resident dentist wanted for 336-bed Tuberculosis Sanatorium. Latest equipment; pleasant surroundings. Salary plus complete family maintenance. Private practice in spare time; nearby town of Dunseith and surrounding territory without dentists. Send full information including picture and references to Superintendent, State Tuberculosis Sanatorium, San Haven, North Dakota.

•

TEXAS—Associate wanted for general practice in medical clinic in southwest Texas. Completely furnished office in busy, progressive city of 60,000. Knowledge of Spanish helpful but not essential. Salary and percentage. Address A.D.A. Box 83.

VIRGINIA—Splendid opportunity, immediate income, for dentist who wishes to associate with medical and dental group. Virginia Board. Address A.D.A. Box 84.

OPPORTUNITIES WANTED

DENTIST—Young, World War II Veteran, desires association with older, established general practitioner located in Southwest. Will be available January first. Address A.D.A. Box 85.

•

WANTED—Dentist desires position or association in general or specialized practice. Excellent surgical background; 22 years varied experience, pleasing personality. Substantial renumeration essential. Wisconsin and Illinois licensure. Address A.D.A. Box 77.

•

WANTED—New York and Pennsylvania licensed dentist with four years general experience desires association with general practitioner or specialist. U. of Pa. graduate; 26 months tour of duty with U.S. Navy recently completed. Address A.D.A. Box 86.

•

WANTED—Dentist, 1945 Pittsburgh graduate, desires active practice or association with future opportunities in New Jersey or New York; licensed in both states. 6-months internship, varied clinical experience, two years private practice. Now completing 30 months army service. Address A.D.A. Box 74.

•

ORAL SURGEON—Well trained, just completed 2-year residency in outstanding medical center, desires association—oral surgeon; group; teaching. Candidate for MS in Oral Surgery in June 1952. Address A.D.A. Box 87.

EQUIPMENT FOR SALE

FOR SALE—2-year old slightly used cream Ritter Senior Split Unit, Panovision light, American cabinet mobile. At cost. Will ship. Direct inquiries to Major Leo Eff, 62 LaSalle Road, West Hartford, Conn.

MISCELLANEOUS

WANTED—Old Dental Books; Orthodontia Journals; Old Dental Reprints; Advertisements. Leo L. Bruder, 1 DeKalb Avenue, Brooklyn 1, New York.

Burneice Larson, Director
The Medical Bureau
Palmolive Building
Chicago, Illinois

OPPORTUNITIES AVAILABLE

WANTED—(a) Dentists experienced or prepared for teaching for following departments: (1) Pedodontia; should be qualified for professorship. (2) Crown and bridge; complete staff required, including chief. (3) **Oral** and **general pathology.** (4) **Oral Surgery.** (5) Operative Dentistry. (6) Prosthodontia.

(b) Dentists interested in **general practice** for following: (7) Group practice, town 40,000, Texas. (8) Association with general practitioner; long established town of 100,000, Illinois. (9) Association; college town, Alabama. (10) To establish own practice, small industrial town, Arizona. (11) Group association; salary or percentage providing excellent income, South Dakota. (12) Group association, Detroit area. (13) To establish practice, county seat town, Idaho; no dentist within fifty miles.

The Medical Bureau (cont'd)

(c) **Public health** dentist; resort town, North Carolina.

•

(d) **Orthdontist;** Board qualified or eligible; association with well established practitioner; Illinois.

•

(e) **Pedodontist, exodontist** and **general practitioner;** dental department, large group and hospital; medical center, West.

•

(f) **Oral surgeon** to become associated with oral surgeon; California.

•

(g) Associate by **general practitioner;** should be interested in children's dentistry; Baltimore area.

•

(h) **Public health dentist;** interesting assignment; Missouri.

•

(i) **Orthodontist** to become Associated with orthodontist; Wisconsin.

•

(j) **General practitioner** interested children's dentistry; association with two dentists; Chicago.

OPPORTUNITIES WANTED

(a) ORAL SURGEON; Diplomate American Board; past several years, private practice, instructor, oral surgery, university dental school and chief of oral surgery, large general hospital.

•

(b) PEDODONTIST; Diplomate, American Board of Pedodontics; six years' private practice; three years' general practice before specializing.

•

(c) PROSTHODONTIST; Board eligible; six years, clinician in prosthodontia and restorative dentistry and three years, chief, department, large institution.

•

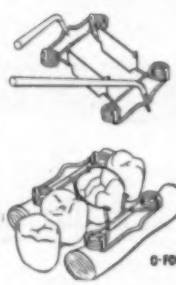
(d) ORTHODONTIST; degrees, Eastern schools; graduate training, orthodontia, Columbia; private practice specializing in orthodontia since 1941.

•

(e) GENERAL PRACTITIONER; B.S., D.D.S., Northwestern University; recently discharged from Navy.

•

(f) PUBLIC HEALTH DENTIST; D.D.S., Columbia; year's graduate training in public health dentistry completed June for which he received M.P.H. degree.



It's Better than you think—

The E-Z MATRIX

No retainers necessary. Can be used with ANY type of filling material. . . . Provides extreme visibility and freedom of operation. . . . Made of stainless steel. . . . NEW Anterior E-Z Matrix now available for Plastic and Synthetic filling materials. . . . Write for Literature. Now available—8 Child's Sizes in E-Z Bands. Send for Order Chart.

Sold by Better Dealers Everywhere.

Manufactured by

UNION BROACH CO., INC.

37 West 20th Street New York 11, N. Y.

ARE YOU MOVING?

Giving us advance notice will keep the Journal coming to you without interruption. Here's a handy form to use:

NAME_____

Old Address_____

New Address_____

Mail to the American Dental Association, 222 E. Superior St., Chicago 11, Illinois

TICONIUM presents

THOMPSON TRU-RUGAE

IT'S NEW!

You'll like this new idea. See it!

You'll be amazed — it's Ti-Lectro polished — not mechanically polished! This new technique gives you your impression in metal. An exact duplication of the rugae (tissue and tongue side) on upper dentures. Every detail is retained — it's clean — speech is natural — a new technique — Thompson Tru-Rugae!

SEE THIS IN THE TICONIUM BOOTH NO. 109

For new developments . . . look to

TICONIUM
413 N. Pearl St., Albany, N. Y.

Ask Your Ticonium Laboratory About This New Technique

TICONIUM — 413 N. PEARL ST., ALBANY 1, N. Y.

PLEASE SEND ME DETAILED INFORMATION ON THOMPSON TRU-RUGAE

DR.....

STREET.....

CITY..... ZONE..... STATE.....

TABLETS
BUFFERED
Crystalline
Penicillin G
Potassium

CSC

250,000 UNITS

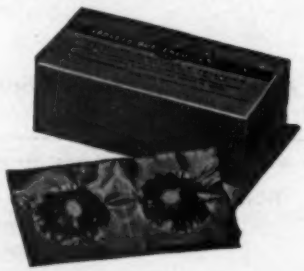
Prophylactically Following Exodontia

In exodontia, the value of prophylactic penicillin administration to patients with rheumatic heart disease or severe infection is well established. Given before and following extraction, penicillin greatly reduces the incidence of blood-borne infection and minimizes the chances for secondary complications both *in situ* and in distant structures.

Tablets Buffered Penicillin-C.S.C., providing 250,000 units of potassium penicillin G per tablet, are an excellent means of instituting prophylactic therapy. A single tablet 4 to 6 times daily is usually adequate.

The oral administration of penicillin has also been recommended pre- and postoperatively when there is danger of systemic infection following surgery, especially in the case of infected tonsils, periapical abscesses, etc. For this purpose a minimum of 750,000 units should be given during the 24 hours before operation and 500,000 to 1,000,000 units daily in divided doses every 4 hours after operation for 3 or 4 days.

At your prescription pharmacy in boxes of 10 tablets, each tablet individually sealed in foil.

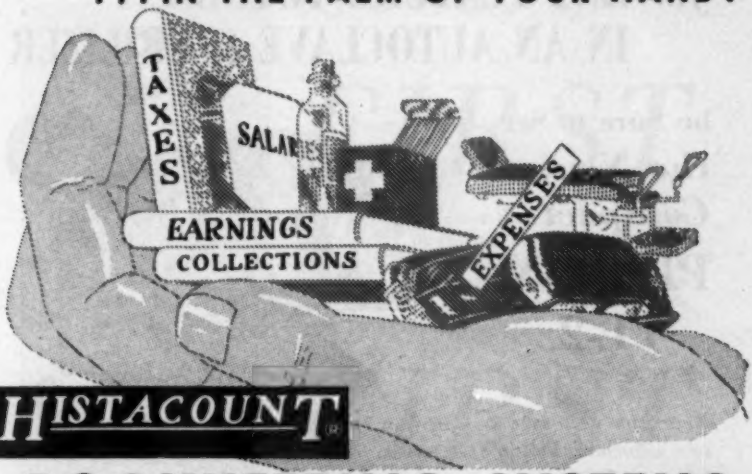


CSC Pharmaceuticals

A DIVISION OF COMMERCIAL SOLVENTS CORPORATION, 17 EAST 42ND STREET, NEW YORK 17, NEW YORK

All the Facts

. . . IN THE PALM OF YOUR HAND!



HISTACOUNT®

BOOKKEEPING SYSTEMS

If you want to know EVERYTHING about your practice EVERY-DAY; if you want all the facts "in the palm of your hand" surely and correctly, you want the "Histacount" Bookkeeping System because it is guaranteed to do all these things for YOU. "Histacount" has served a generation of doctors but it is as new as the first shingle you hung out. Try it on our Money-Back Guarantee!

A SYSTEM FOR EVERY PRACTICE

REGULAR EDITION
Plastic-bound style allows one page per day for up to 33 patients; Loose-leaf style is best for larger practice. (Either style $7.25)

LIMITED PRACTICE
For practices of up to 90 patients per week. It has everything that's in the regular edition. (Plastic-bound only $4.50)

PROFESSIONAL PRINTING COMPANY, INC.
America's Largest Printers to the Professions
202-208 TILLARY ST BROOKLYN 1, N. Y.

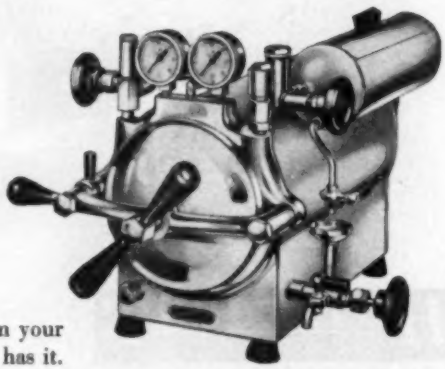
Gentlemen: Send the "Histacount" System: 4-10-1
Regular Edition: ☐ Loose-Leaf; ☐ Plastic-Bound
☐ Limited Practice Edition
☐ Remittance herewith; ☐ Send C.O.D.
☐ Send me complete details
(Just attach this to your letterhead or Rx blank)

USE THIS COUPON

"HISTACOUNT" SOLVES YOUR PROBLEMS OR YOUR MONEY BACK

for ANY FEATURE YOU WANT IN AN AUTOCLAVE STERILIZER

be Sure to See
the New, Compact
PELTON FL-2



No matter what you want in your new autoclave, Pelton FL-2 has it.

SPEED: The FL-2 generates and then stores steam under pressure in the outer chamber ready for instant use. Time between sterilizing periods is reduced from many minutes to less than 30 seconds.

HOSPITAL SAFETY: Now you can have speed *plus* the safety of hospital sterilization in your office . . . moist heat at 250°F., that destroys spore-bearing bacteria.

CONVENIENCE: FL-2 is self-contained. It condenses discharged steam into distilled water, always available in condenser-reservoir for refilling boiler . . . no sputtering steam. Automatic current controls; safety cut-off.

LONG LIFE: Sturdy bronze, brass and copper construction.

APPEARANCE: Compact, modern design; richly finished in lustrous chrome; a beautiful addition to any office.

ECONOMY: In all-day operation, current is off two-thirds of time. Delicate instruments stay sharper, last longer. Money saved by buying unsterile dressings and sterilizing in autoclave soon pays for FL-2.

See the FL-2 at your dealer's. You will not regret waiting for delivery.

PELTON

THE PELTON & CRANE CO., DETROIT 2, MICHIGAN

DARKROOM AIDS FOR GUARANTEED ACCURACY

STAINLESS STEEL DARKROOM THERMOMETER
Finest dental thermometer available. Accurately calibrated. Can't rust or corrode. Sheath protects glass tube. Handy clip holds it in place. $1.95

FR INTERVAL TIMER
Guarantees against under or over developing. Clear and easily readable dial in darkroom. Long ring alarm. Pre-set stop feature. $7.50

FIRST

THEN – (more than 15 years ago) to be introduced in concentrated liquids, FR X-Ray solutions have kept their years-ahead advantages through continuing research – and improvements. That's why they remain . . .

FIRST

NOW – in quality . . . accuracy . . . clarity . . . diagnostic detail. That's why they are still *first to be specified* in dental and hospital darkrooms all over America.

X-RAY FIXER
32 oz. bottle $1.15
(makes one gallon)
160 oz. bottle $4.60
(makes 5 gallons)

X-RAY DEVELOPER
32 oz. bottle $1.15
(makes one gallon)
160 oz. bottle $4.60
(makes 5 gallons)

CONCENTRATED LIQUID X-RAY SOLUTIONS

KERR MFG. CO.
Exclusive distributors to the dental field for
THE FR CORPORATION • 951 BROOK AVENUE • NEW YORK 56, N. Y.

ACRALITE

fastcrown PROVIDES

all these advantages

fastcrown HAS BEEN PROVED NON IRRITATING TO THE PULP!

fastcrown HAS MINIMUM DIMENSIONAL CHANGE!

fastcrown RESTORATIONS SHOW NO COLOR CHANGE!

fastcrown RESTORATIONS WILL NOT WASH OUT!

PLUS... AN AMAZINGLY SIMPLE new

NON-PRESSURE COMPENSATING TECHNIQUE!

Eliminates...

- Pressure, matrix retainers and clamps —
- Failures due to movement during cure —
- Dentists' fatigue due to use of finger pressure —
- Excessive surplus that creates finishing difficulties —

Provides...

- Compensation for volume loss during polymerization —
- Dimensional accuracy heretofore unattainable —
- Unsurpassed density and hardness —
- Controlled surplus and an end to finishing problems —
- A practical, fast and simplified procedure —

*This important contribution to operative procedure was developed by Dr. Frank Nealon.

Ask your dealer or write to us for the booklet describing FASTCROWN NON-PRESSURE COMPENSATING TECHNIQUE

ACRALITE SUPERIOR PRODUCTS for MODERN DENTISTRY
ACRALITE CO., Inc., 230 W. 41 St., New York 18, N.Y.

MADE FOR CHILDREN

NUMBER 7 OUTFIT

"MIDGET"—The Perfect Cotton Roll Holder
for Small Children

Distends cheek. Smallest size made. Cotton rolls changed easily without adjusting. Holds lower lip firmly. Controls tongue movements. No sharp edges or corners. Round stainless steel wire. Comfortable for small children. Stainless steel retains brilliance and lustre — lasts a lifetime.

"MIDGET"
DeWitt Clogless Saliva Ejector

Smallest size made
Lightest in weight
Does not bear down on soft tissue
Lustrous stainless steel

Small TEE Matrix Bands

No retainer used.
Quickly and easily adjusted.
May remain in place for carving and occlusion.

Complete Outfit, $9.00.....*Sold Separately*

P. N. CONDIT TRADE MARK Condit REGISTERED **Boston 17, Mass.**

LOW-COST VACUUM INVESTING!

JELENKO VACUTROL BENCH MODEL

Does Everything the Famous Floor Model Does in LESS SPACE — at LESS COST

Vacuum investing in VACUTROL quickly removes air from invested flasks, assures smooth castings of fine detail. Speeds investing, Reduces finishing time, Saves Gold — cuts grinding loss.

Use also in pouring models, lubricating dies, oil-impregnating models, etc.

All operating parts in cabinet 19"x12"x13" high; attains 29" vacuum in about 30 secs.; No installation cost — just plug in.

110 V. 50-60 Cy. AC $248.00
110 V. DC or 220 V. 50-60 Cy. AC $263.00

From Your Dealer — Send for Literature

JELENKO — 136 W. 52nd St., New York 19

Could you use a few extra dollars?

Then sell us your old A. D. A. Journals. Copies of the following issues are wanted:

MARCH 1948

JANUARY 1949

We will pay $1.00 for each copy we buy. *Write us* today telling us which of the above issues you are willing to sell.

Purchasing Dept.

AMERICAN DENTAL ASSOCIATION
222 E. Superior St., Chicago 11, Illinois

now... Durallium ***photo-aids***

help you to educate your patients

Ever have patients tell you that "it costs too much" when you want to give them the kind of dentistry they need? Sure you have, doctor . . . It's one of the biggest problems facing dentists today. Many people remain dental cripples—but own cars and television sets—simply because they don't realize what good dentistry can do for them.

To educate patients along dental lines, good visual material is essential—particularly "before-and-after" photographs. When your patients see how other patients improved their looks—and outlooks—with good dentistry, they'll start thinking more about their teeth and less about luxuries.

In response to a great demand for this type of "before-and-after" educational material, we have prepared a new series of monthly bulletins called Durallium *photo-aids*—based on actual *patients'* photos that were generously contributed by many leading dentists. *Photo-aids* deal with all types of dental appliances, including crown and bridgework, partials, full dentures and complete mouth rehabilitation.

Photo-aids will save you time, and in addition will help you to instill in your patients a *desire* for good dentistry that will enable you to give them the *benefits* of good dentistry.

Photo-aids are now available to you through your qualified DURALLIUM laboratory—*there is absolutely no obligation.* If you have not already received your first *Photo-aid*, contact your nearest DURALLIUM laboratory, or send us this coupon today.

Durallium
PRODUCTS CORP.
809 W. Washington Blvd., Chicago 7, Ill.

GENTLEMEN: *Please send me my first set of PHOTO-AIDS, plus the PHOTO-AID binder, and ask my nearest DURALLIUM laboratory to begin sending me the regular monthly supplement. I understand that there is absolutely no obligation connected with this offer.*

Dr._____

address_____

city_____ ( ) state_____

laboratory_____

A Good Alloy Need Not Be Expensive

Meets with A.D.A. Specifications — CHECK THESE PRICES

• Start now to use this tested, accepted alloy that has been used by leading West Coast Dentists for over 18 years. Speyer's Alloy is carefully made from C.P. metals. You will find it amalgamates smoothly in minimum time, carves exceptionally well in ten minutes and produces a hard, well-sealed mass that polishes beautifully.

- 68½% silver.
- No initial contraction.
- 4.4 microns per Cm expansion in 24 hours.
- 1.6% flow 24 hours after amalgamation.
- Complete directions with every bottle.

A Star Performer in the Alloy Field

1 oz.	@	$1.90 per oz.
5 ozs.	@	1.70 per oz.
10 ozs.	@	1.60 per oz.
20 ozs.	@	1.50 per oz.
30 ozs.	@	1.40 per oz.
50 ozs.	@	1.30 per oz.

I enclose check for .....

If your dealer can't supply you, order direct.

SPEYER SMELTING & REFINING CO.
216 MEDICAL & DENTAL BUILDING
SEATTLE 1, WASH.

Dr. .....
Address .....
City ..... State .....

Close-Up of Teeth Taken With Kine Exakta "V"

For Parallax-Free Dental Photography!

1950 KINE EXAKTA—MODEL V

35 mm. Single Lens Reflex Camera

For photographing conditions before and after treatment, cavities, inlays and bridgework, and for recording and for demonstrating oral treatment to patients. The indispensable aid of the progressive dentist! With f2.8 Zeiss Tessar "T" Coated Lens..... $180.00*
Penta Prism Eye Level Reflex Viewfinder..... 66.50*
Extension Tube Set..... 24.00
Microscope Adapter 29.50
*plus tax

FREE—Write Dept. 200 For Free Descriptive Booklet "V" on Camera & Accessories and Brochure On Close-Up Technique With Kine Exakta.

EXAKTA CAMERA COMPANY
46 W. 29th St., New York 1, N. Y.
Exclusive Sales And Service Organization In U.S.A. For Ihagee Camera Works, Germany

Copyright 1950, Exakta Camera Company, Inc.

More Light — Less Strain
When using the OP-PRO instrument

Suppresses the tongue — depresses the cheek — reflects more light — and lowers the floor of the mouth — all at the same time, for you.

Your patients will relax more — consequently they are less apprehensive.

Ask your dealer about **OP-PRO** or write for literature.

1 Set (2) Op-Pro instr., right & left **$8.85** per pair

1 Pkg. (6) Replaceable lens, plain or mag. **$3.30**

ORDER THROUGH YOUR DEALER

OP-PRO Inc.
Box 1018 Minneapolis 1, Minnesota

Oral B®

More than 2500 * finer, softer bristles!
Permits gum massage without injury!
Minimizes abrasion of tooth structure!
Three convenient sizes, only one texture!

Oral B 60
Adult Size

Oral B 40
Adult Junior

Oral B 30
Junior Size

* Oral B 60 (shown at left)

We Appreciate Your CONFIDENCE

Confidence in a product is difficult to achieve — more difficult to maintain. That is why we are particularly proud of the Oral B. During the early development of this pioneer soft bristle brush you recognized its value and recommended it to your patients. Your continued acceptance is the one thing we appreciate most. May we always merit this professional support.

Oral B Company

315 SOUTH FIRST STREET
DEPT. C, SAN JOSE 13, CALIF.

PATENTED

NEW, IMPROVED EASE-ON STAIN KIT

Concentrated and diluted self-curing acrylic stains in liquid form, for staining acrylic teeth, jacket crowns, veneers, bridges, etc.

Complete Kit—$20.00

RADIO LINER

Only acrylic cavity lining that shows outline by X-ray. Sticks to dry cavity walls like glue.

Complete Kit—$6.00

EASY GLAZE

A self-curing transparent acrylic liquid for use as a marginal seal and glaze for all acrylic resins and filling materials.

Complete Kit—$6.00

EASY OPAQUE

An acrylic base, in liquid form, that bonds with processed acrylic. STAYS PUT.

Individual ½ oz. bottle.....$4.00
Trial Kit of 7 colors.....$7.50

All Easy Plastic products are available through reliable dental depots. If your dealer cannot supply you, or if more information is desired, write

EASY PLASTIC PRODUCTS INC.
1 NEVINS ST. BROOKLYN 17, N. Y.

Gottlieb—Dental Caries

By BERNHARD GOTTLIEB, M.D., D.M.D.
Late Professor of Oral Pathology and Dental Research, Baylor University College of Dentistry, Dallas, Texas

This work gives a complete and careful discussion of dental caries, its cause, nature and prevention.

The author reveals a method of prophylaxis by the use of a formula presenting a combination of the principles of silver nitrate and sodium fluoride which is most effective in resisting and preventing caries. His instructions for impregnation of the tooth with the silver nitrate compound are given fully and the effective formula is clearly and freely presented to the dental profession.

262 Pages, 7" x 10". 222 Illustrations and 59 in Color on 7 Plates. $10.00

Feldman—Exodontia

By M. HILLEL FELDMAN, D.D.S., F.I.C.A.
Director of Dentistry, Lincoln Hospital, Department of Hospitals, City of New York

Dr. Feldman presents a practical guide for dentists who give exodontic service to his clientele. It is not meant for the specialist in this field. The author's objective is to point the way to removal of a tooth with a minimum of trauma to tissue locally and to the systemic organism in general. More than 100 illustrations have been replaced by new ones. There is a chapter on Dental Malpractice Jurisprudence by Mr. Michael A. Hayes, of the New York Bar.

New (4th) Edition. 290 Pages. 322 Illustrations. $6.50

Washington Square **LEA & FEBIGER** Philadelphia 6, Pa.

NOW! **A new Articulator that saves processing and chair time — provides greater accuracy**

THE NEW, IMPROVED 'Moyco' *Precision* Articulator

✓ Solves the problem of shifted teeth
✓ Operates with a twist of the wrist
✓ Simple to operate, is 100% foolproof

ONLY
$15
(with 2 inserts)
Order from your dental dealer.

Guaranteed
. . . to operate perfectly if instructions are followed.

How often have you felt the futility of retaining balance in full and partial dentures during processing? This problem, main cause of failures and re-makes, is fully solved by the improved new "Moyco" Articulator. It will pay for itself many times over.

You can count on the balance achieved in the set-up being retained in the completed denture. The need for plaster during articulation is eliminated—and shifting of teeth due to dimensional changes in plaster during processing is compensated for. Write for folder.

Note—50% trade-in allowance for your present "Moyco" Articulator, on this new model.

Manufactured by

The J. Bird Moyer Co., Inc. • 117 N. 5th St. • Philadelphia 6, Pa.

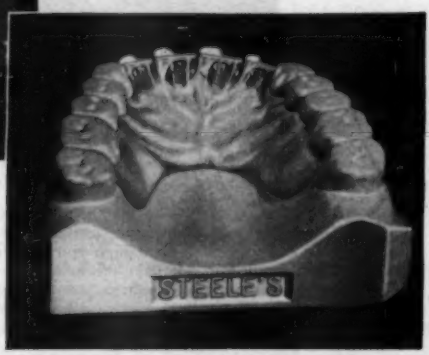
Featured at the dental meetings in Washington Oct. 15th thru 18th and New York Dec. 3rd thru 7th

Made to Order!

Where the bite is SHORT or CLOSE, and a plastic partial is indicated, use Steele's Facings and Steele's Denture Backings for the anterior teeth. This is an ideal spot to prove their worth. The Denture Backing provides a strong attachment within the plastic material. And in *close* bites particularly, it should be remembered that a Steele's Facing is *thinner* in its labial-lingual dimension than a denture tooth.

Steele's Facings have a long reputation for serviceability. (The metal backing takes the stress.) And in case of accidental breakage they have the advantage of being replaceable in a matter of minutes. Either type of Steele's Facing (flatback or porcelain biting edge) can be used in plastic partials with the appropriate Denture Backing.

THE COLUMBUS DENTAL MANUFACTURING COMPANY • COLUMBUS 6, OHIO



In this short bite case the area of denture material supporting the four anteriors has sufficient strength and rigidity without the reinforcing bars usually used with Denture Backings. The embedded backings themselves form an adequate attachment. Where only one or two teeth are involved the small isthmus of denture material should be strengthened with the usual reinforcing bars.

Steele's INTERCHANGEABLE FACINGS WITH *Denture Backings*

a HEAD FULL of advantages

an eye full of beauty

You get them both with the CDX. For instance, consider the principle of complete high-voltage *oil immersion* — a CDX innovation. It pays off in smaller head size for maneuverability and more efficient cooling for longer life. More, the CDX offers 100% electrical protection for you and your patient. You'll appreciate its streamlined performance — your patients its streamlined beauty.

See your dealer or write for booklet "X-Ray — Your Indispensable Investment." X-Ray Dept., General Electric Company, Milwaukee 14, Wisconsin, Dept. JJ-9.

GENERAL ELECTRIC

Abbott Procaine Dental Cartridges

You can depend on Abbott Procaine Dental Cartridges for uniform effectiveness because they are:

Time-Tested. Abbott, the world's largest manufacturer of procaine hydrochloride, pioneered in the manufacture of that drug in the United States in 1917 and has been making dental cartridges since 1937.

Top Quality. Abbott standards of purity—exceeding U.S.P. requirements—assure you of solutions that are sterile, isotonic and adjusted to a pH that provides maximum stability.

Convenient. Abbott Procaine Dental Cartridges fit all standard dental syringes and are available through your usual source of supply in four commonly-administered concentrations. Won't you specify these effective, time-saving dental cartridges the next time you order procaine? Abbott

ABBOTT'S Procaine hydrochloride

2% with Epinephrine 1:60,000, 1:50,000 and 1:30,000

4% with Epinephrine 1:50,000

Do you have Thoma's
ORAL SURGERY
On your bookshelf?

If not, now is a good time to put it there, for we have just ordered another reprint of this famous work which has been called the "most comprehensive work on oral surgery ever released."

ORAL SURGERY encompasses all the surgical diseases, injuries, and developmental abnormalities of the oral cavity, teeth, jaws, and adjacent structures. Although written to give specific descriptions of the various operating techniques for the correction and elimination of oral surgical abnormalities and diseases, the general treatment of the patient has not been overlooked.

Here's what the critics think of it:

"Endowed with a work compulsion, Dr. Thoma has produced a prodigious work. The publishers have done a grade A job. The profession should be enlightened, the public being served should profit by ORAL SURGERY by Thoma."
—Harvard Dental Alumni Bulletin

"Most noteworthy of all the features of this text are the superb photographs and illustrations of which there are a total of 1631. This book, presenting a new approach to the teaching of oral surgery, deserves a conspicuous place in the library of every dental student and practicing dentist.

"ORAL SURGERY is a clinical book dealing principally with the science and art of oral surgical procedures. It should be used in conjunction with ORAL PATHOLOGY by the same author, which gives in greater detail, the etiology, pathogenesis, and the morbid anatomy and histology of the region dealt with by the oral surgeon. The two volumes are to be considered a significant contribution to the study of oral surgery, and will remain an important source of reference because of the copious illustrations, the case studies, photographs and photomicrographs."
—New York University, Journal of Dentistry

"All-in-all, ORAL SURGERY is a well-rounded well-integrated work which serves as a crowning achievement to the author who has so successfully and painstakingly endeavored to bring an understanding of the principles and techniques of oral surgery within the scope of all members of the profession. Here, for the first time, is a work which thoroughly deals with all phases of the subject and presents in a systematic and comprehensive manner the treatment, care and follow-up of patients upon whom surgical procedures must be done."
—Bulletin of the Alabama Dental Association

***By* KURT THOMA, D.M.D., Professor of Oral Surgery and Brackett Professor of Oral Pathology, Harvard University. In Two Volumes. 1650 pages, 1631 illustrations, including more than 100 in color. PRICE, $30.00**

Order Form

ADA 10-51

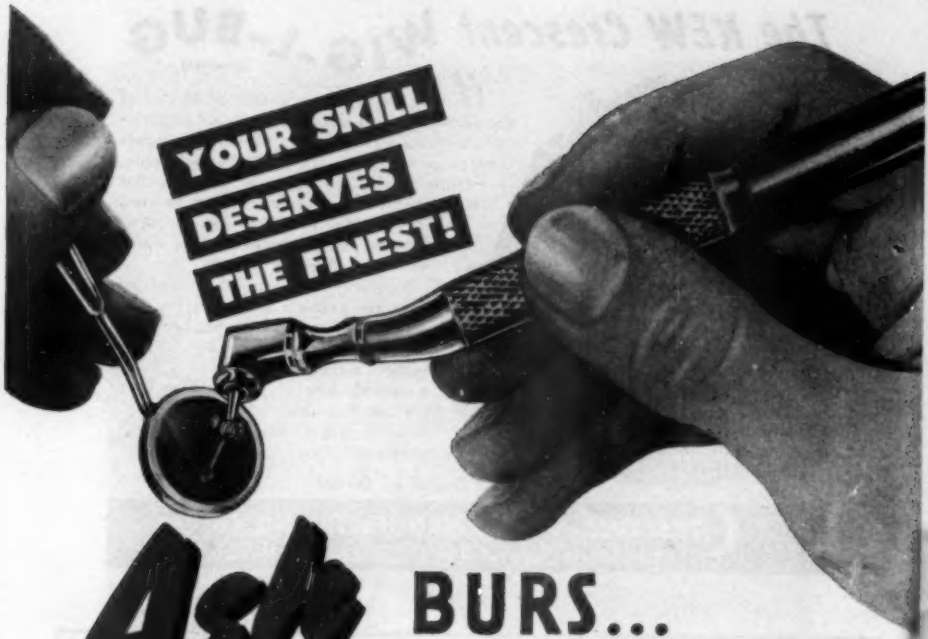
The C. V. Mosby Company
3207 Washington Blvd., St. Louis 3, Mo.

Please send me Thoma's ORAL SURGERY (In Two Volumes)
The price is $30.00

☐ Enclosed find check. ☐ Charge my account.

Name .....

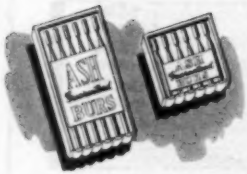
Address .....



Ash BURS...

For over 130 years dentists the world over have enjoyed the fine performance of Ash Products. Today, they recognize Ash Burs as the sharpest, smoothest-running and most durable Burs on the market.

And the reason for this high degree of professional acceptance lies in the way Ash Burs are made. Manufactured in the largest, most scientifically operated bur plant in the world, Ash Burs are made from the finest grade of tungsten steel — and by the most skilled craftsmen available.



Ash Burs are made in a wide variety of sizes — Regular, Miniature and Tapered Shank. Protected in a handy, plastic pack, Ash Burs always arrive in perfect condition.

Order a supply of famous Ash Burs from your dealer today. Your skill deserves the finest!

Claudius Ash, Sons & Co., U.S.A., Inc.

ONE OF THE AMALGAMATED DENTAL GROUP OF COMPANIES

127-131 Coit Street — Irvington 11, N. J.

THE NAME "ASH" HAS IDENTIFIED FINE DENTAL PRODUCTS FOR OVER 130 YEARS.

The NEW Crescent WIG-L-BUG (Patented)

Here is the NEW, streamlined Model of the famous Wig-l-bug, the wonder electric-mortar-and-pestle that is placing amalgam work on a scientific basis. The dependable, trouble-free Wig-l-bug mechanism—that has proved so successful—is now housed in beautiful bakelite. And a New, accurate, easy-to-read electric timer has been added.

Requires only 7 to 10 seconds to triturate enough amalgam for the average filling. Saves time, prevents waste, produces uniformly perfect mixes with a smooth, fine texture. Use the Wig-l-bug with your preferred alloy.

Thru Your Dealer or Direct

Crescent DENTAL MANUFACTURING CO.
1839 South Pulaski Road, Chicago 23, Illinois

INSURANCE

FOR DENTISTS, PHYSICIANS, SURGEONS EXCLUSIVELY
Accident • Hospital • Sickness

ALL PREMIUMS COME FROM — PHYSICIANS SURGEONS DENTISTS — ALL BENEFITS GO TO

Cost has never exceeded amounts shown

$5,000.00 ACCIDENTAL DEATH $25.00 weekly indemnity, accident and sickness	**$8.00** Quarterly
$10,000.00 ACCIDENTAL DEATH $50.00 weekly indemnity, accident and sickness	**$16.00** Quarterly
$15,000.00 ACCIDENTAL DEATH $75.00 weekly indemnity, accident and sickness	**$24.00** Quarterly
$20,000.00 ACCIDENTAL DEATH $100.00 weekly indemnity, accident and sickness	**$32.00** Quarterly

Also hospital expense for members, wives and children at small additional cost

85c out of each $1.00 gross income used for members' benefit

$4,000,000.00
INVESTED ASSETS

$17,000,000.00
PAID FOR CLAIMS

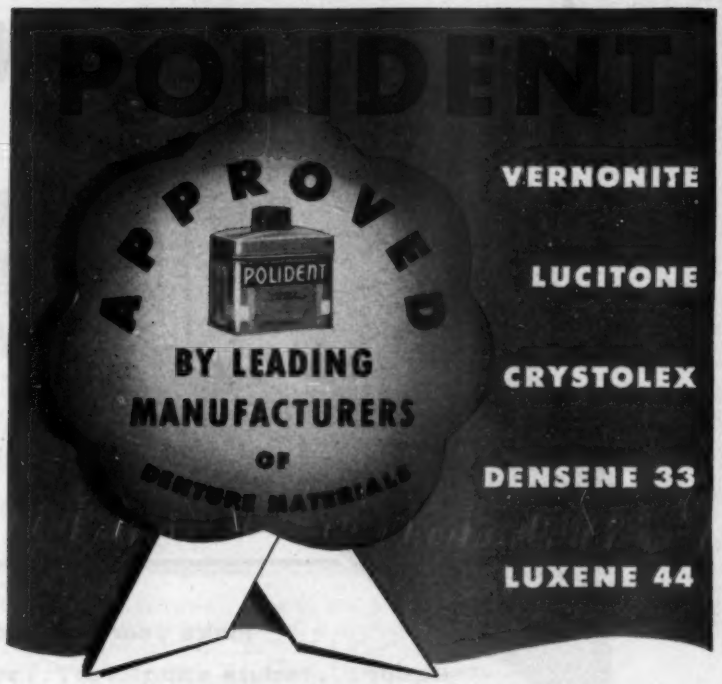
$200,000.00 deposited with State of Nebraska for protection of our members

Disability need not be incurred in line of duty—benefits from the beginning day of disability

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION

49 years under the same management

400 FIRST NATIONAL BANK BUILDING — **OMAHA 2, NEBRASKA**



All approve the use of Polident for cleaning plastic restorations...for safely dissolving mucin, tarnish, food debris and odor...for retaining original lustre and beauty. Dentists, too, like the way Polident banishes the risk of dangerous handling, or of brush damage to delicately fitted ridges. Your patients will appreciate your suggestion of this easy "soak-and-rinse" Polident method—the *safe*, efficient way for helping dentures to "keep fit."

HUDSON PRODUCTS · JERSEY CITY 2, NEW JERSEY

Office Samples on Request

A-101

HUDSON PRODUCTS, Jersey City 2, N. J.

Please send me without charge or obligation a supply of office samples of Polident.

Dr. _____

PLEASE PRINT

Address _____

City _____ State _____

Now- DU PONT DENTAL

make your darkroom work

easier . . . reduce exposures . . . save time

Du Pont Dental Bitewing X-ray Film helps you solve interproximal radiographic problems. It facilitates recording on one film the coronal two-thirds of both the maxillary and mandibular teeth and produces radiographs of exceptional diagnostic value.

This means fewer exposures . . . fewer films used . . . less darkroom processing and better, faster work. You'll also like the wide exposure latitude of the film . . . its dependable uniformity . . . blue safety base and anti-abrasion emulsion.

Du Pont Dental Bitewing X-ray Film has the same speed characteristics as regular Du Pont double-coated Type D Periapical Dental X-ray Film No. 550.

It is packed in exclusive "Pull-A-Tab" packets that are easily positioned. The bite tab holds the film properly and securely for superior interproximal radiographs. Maximum comfort is assured by the flexibility and rounded corners of the packets. Saliva-proof envelopes protect the film at all times. Green tab on packet readily identifies tongue-side of the film . . . reduces risk of "lost exposures" and permits easy removal of the film for processing.

Exposures recommended with Bitewing X-ray Film at 10 milliamperes, 110 volts (approx. 65 Kv.P.) and an 8-inch anode-film distance:

Average adult . . . . 2—2½ seconds

Average child . . . . 1—1¼ seconds

BITEWING X-RAY FILM

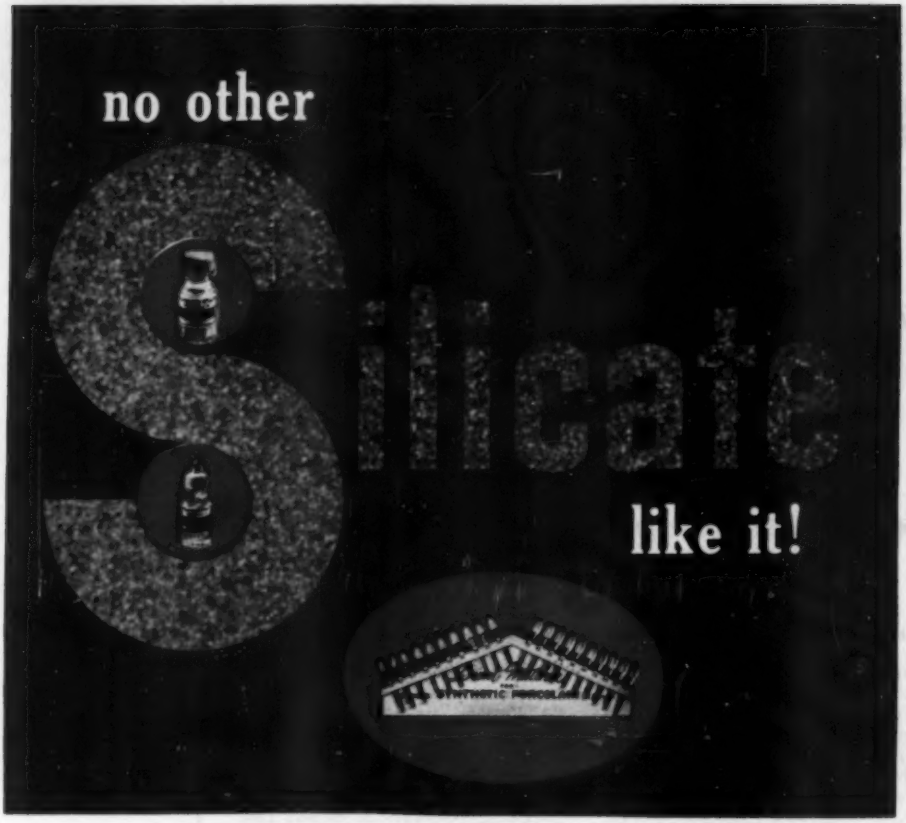
in handy "Pull-A-Tab" packets

for better interproximal radiography

Rapid processing technique, permitting wet-film diagnosis in less than two minutes after exposure, can be applied by giving twice the foregoing exposure times. Develop one minute at 72°F. in Du Pont Concentrated Liquid X-ray Developer. Rinse 10 seconds. Immerse 20 to 30 seconds in Du Pont Concentrated Liquid X-ray Fixer. After wet-film diagnosis, complete fixation and wash film as usual.

Du Pont Dental Bitewing X-ray Film in No. 3 size (2¼ x 1 1-16 inches) is available in packages of 24 "Pull-A-Tab" packets. Regular Du Pont Periapical Dental X-ray Film (1¼ x 1⅝ inches) is supplied in both single- and double-coated films packed one or two films to the packet, in packages of 24 and 144 packets. Ask your dealer for these dependable films and processing chemicals by name. E. I. du Pont de Nemours & Co. (Inc.), Photo Products Dept., Wilmington 98, Del.

"Pull-A-Tab" packets in No. 3 size now supplied with bite tab.



More efficient! You can match the color of *any tooth* with a *single* Synthetic Porcelain powder. The plastic Shade Guide speeds shade identification; "pre-blended" powders eliminate tedious color blending. All these advantages are now available in an assortment of packages for your selection at attractive prices.

More durable! For years, dentists have observed that Synthetic Porcelain restorations give longer service. Durability is a matter not of chance but of chemistry: laboratory tests prove that Synthetic Porcelain is decidedly lower in solubility than any other silicate. Synthetic Porcelain fillings have lasted twenty years and longer!

Caulk Synthetic Porcelain

For modern materials call on **CAULK**
Milford, Delaware

CO-RE-GA

...a name you can trust for conscientious, ethical service;

..a denture adhesive your patients can rely on for quality, purity and performance.

Accepted
COUNCIL ON DENTAL THERAPEUTICS
AMERICAN DENTAL ASSOCIATION

Mail this coupon for your supply of professional samples

PLEASE PRINT

Dr._____

Address_____ State_____ 21-K

City_____

CO-RE-GA CHEMICAL CO. • 76 Mill Road, Jersey City 6, N. J.

CO-RE-GA IS NOT ADVERTISED TO THE PUBLIC

introducing-
the NEW
Myerson's
Shear-Kush
DURA-BLEND
POSTERIORS
UPPER CUTTERS
Converge Lingually

DESIGNED FOR MAXIMUM EFFICIENCY, FREE LATERAL MOVEMENT AND NATURAL APPEARANCE.

FLAT OCCLUSAL DESIGN Myerson's Dura-Blend SHEAR-KUSP is the *only* plastic posterior that combines flat occlusal design with natural appearance.

SHEARING ACTION The shearing action, as graphically illustrated in the diagrams below, provides the ultimate in masticating efficiency in a non-interdigitating posterior.

NEW CARVINGS Made in new carvings by Dr. Simon Myerson which harmonize with the beautiful Dura-Blend Anteriors.

UNPRECEDENTED PROTECTION Made in the famous Dura-Blend plastic material, Shear-Kusp is guaranteed against excessive wear, crazing and heat distortion by the only warranty of its kind in the dental field.

Send for more detailed information and technique book.

WRITE: DEPT. ADA10

MYERSON TOOTH CORPORATION
Cambridge 39, Mass.

LOWER CUTTERS
Converge Buccally

IN OPPOSITION
Action Is Shearing

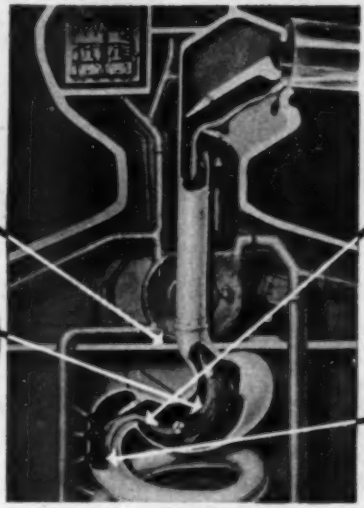
Give faster pain relief with BUFFERIN

ACTS TWICE AS FAST AS ASPIRIN

WITHOUT GASTRIC DISTRESS!

1. BUFFERIN enters the stomach here.

2. BUFFERIN exerts its antacid effect, lessening the possibility of gastric distress.



3. BUFFERIN helps dilate the pyloric valve, promptly leaves the stomach.

4. BUFFERIN's analgesic component is absorbed into the blood *twice as fast as aspirin*, relieves pain.

When you prescribe BUFFERIN to your patients you assure *faster relief of pain*. Clinical studies[1] show that within ten minutes after BUFFERIN is ingested, blood salicylate levels are as great as those attained by aspirin in twice this time. That is why BUFFERIN *acts twice as fast as aspirin.*

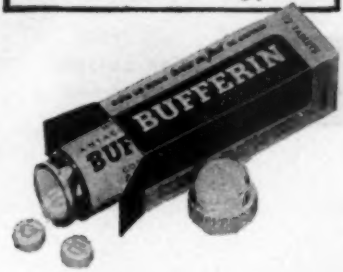
BUFFERIN has *greater gastric tolerance.* BUFFERIN's antacid ingredients provide protection against the gastric distress so often seen with aspirin.[1] BUFFERIN, therefore, is especially suited for use when prolonged use of salicylates is indicated.

1. Effect of Buffering Agents on Absorption of Acetylsalicylic Acid. J. Am. Pharm. A., Sc. Ed. 39:21, Jan. 1950.

In vials of 12 and 36 and bottles of 100. Scored for divided dosage. Each BUFFERIN tablet contains 5 grains of acetylsalicylic acid with optimal proportions of magnesium carbonate and aluminum glycinate.

BUFFERIN
is a trade-mark of the Bristol-Myers Company

Accepted COUNCIL on DENTAL THERAPEUTICS AMERICAN DENTAL ASSOCIATION



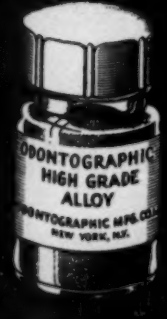
A product of BRISTOL-MYERS COMPANY
19 West 50 St., New York 20, N. Y.

balanced alloy with controlled expansion...

The Odontographic Process eliminates volatilization. It retains intact, the properly balanced proportions of the formula and also preserves the properties of the constituent metals by their complete union through ionization. That's why Doctors rely upon Odontographic with complete confidence, for excellent enduring results.

ODONTOGRAPHIC

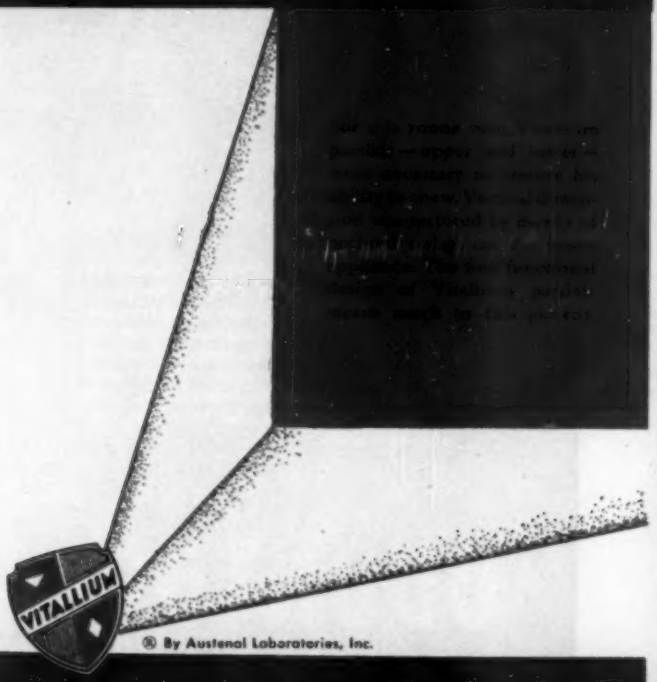
IMPROVED ALLOY AND MERCURY



Alloy Manufacturers since 1907

ODONTOGRAPHIC MANUFACTURING CO., INC. • 62 COOPER SQUARE • NEW YORK 3, N. Y.

"I like my
VITALLIUM



® By Austenal Laboratories, Inc.

AUSTENAL

THERE IS A VITALLIUM

PRESCRIBE...

VITALLIUM PARTIALS

FOR GREATER PATIENT SATISFACTION AND TO ENRICH YOUR PRACTICE

LABORATORIES, INC.

NEW YORK CHICAGO

LABORATORY NEAR YOU

THE GREAT NEW NAME IN DENTAL RADIOGRAPHY

--Dual-X

THE RITTER X-RAY WITH THE EXCLUSIVE FEATURE OF 2 MACHINES IN ONE!

Select your Technique for Better Controlled Diagnostic Quality in Your Radiographs

VARIABLE TECHNIQUE . . .

Set on variable, the Ritter DUAL-X allows you to control, independently, kilovoltage and milliamperage. As a result, the DUAL-X provides clear, sharply defined radiographs of greater diagnostic value. Long distance radiographic techniques and profile radiography become routine due to the ease of DUAL-X adjustment.

STANDARD TECHNIQUE . . .

Set on standard, the Ritter DUAL-X is ready for your routine examinations. With this setting kilovoltage and milliamperage do not need to be adjusted. A reading of 10 milliamperes remains constant for all radiographs. You or your nurse can make routine examinations easily . . . in a minimum of time.

Ask your Ritter Dealer for a demonstration of this Ritter Dual-X today.

DUAL-X features the Ritter Lifetime Stabilizer — tube current automatically stabilized for the life of the equipment without adjustment at any time.

Ritter
COMPANY INCORPORATED
BUILT UP TO A STANDARD — NOT DOWN TO A PRICE
RITTER PARK, ROCHESTER 3, N. Y.

Save TIME

INSIST ON –

XYLOCAINE HYDROCHLORIDE

ASTRA

(Brand of Lidocaine Hydrochloride)*

the new QUICK-ACTING local anesthetic

– cuts time lag between injection and onset of anesthesia. Action is profound, widely diffused and well within clinical ranges of tolerance.

Bibliography sent upon request.

Dispensed for dentistry in 1.8 cc cartridges. 2% solution available without epinephrine; and with epinephrine 1:100,000 or 1:50,000.

Sold through leading dental supply houses

ASTRA

PHARMACEUTICAL PRODUCTS, INC.
WORCESTER, MASS. U.S.A.

*U.S. Patent No. 2,441,498

S. S. WHITE FILLING PORCELAIN IMPROVED

has obtained its widespread popularity because it is outstanding for hardness; insolubility; color values; translucence; fluorescence; simple technique of mixing, insertion and finishing. It is a source of constant satisfaction to the dentist and to the patient whose teeth are restored to natural functioning and normal appearance.

It is a dependable material for esthetic restorations.

---

for sale by your local dealer

S.S.WHITE

Filling Porcelain

IMPROVED

7-2 PACKAGE

FOR TIME SAVING,
LABOR SAVING,
TOOTH SAVING

Contents

7 Filling Porcelain Improved Powders, 1 each Nos. 20, 22, 25, 26, A, and two No. 21

2 Liquids

1 Request Card for Filling Porcelain Improved Color Matching Guide

Packed in an attractive, caduceus-imprinted, leatherette case

PRICE $16.00

THE S.S.WHITE DENTAL MFG. CO.
Philadelphia 5, Pa.

SAVES AT LEAST ⅓ CHAIR TIME
. . . ALLEVIATES PAIN
THERM · Ex SPRAY

REG. U. S. PAT. OFF.

by . . . directing its fine atomized, water spray upon bur, diamond and other abrasive instruments.

to . . . abolish frictional heat . . . remove debris from cavity . . . avoid thermal shock . . . eliminate anesthetic in many instances . . . provide clear visibility . . . divert patient's attention.

OPERATED BY PATIENT

Therm · Ex Atomizer fits your spray bottle, and is connected by rubber tubing to spray attachments. Patient presses air cut-off when feeling pain or upon your direction.

OPERATED BY DUAL CONTROL

Equipment becomes integral part of your unit. Synchronized with your engine, spray starts and stops only with foot controller. You may create spray independently of patient, or patient may participate by pressing his hand-switch, or spray may be completely shut off.

Does not flood mouth — saliva ejector unnecessary. No debris ground into tooth structure. Prolongs efficiency of bur, diamond, stone, disc and other abrasives.

Spray attachments quickly snap on or off contra-angle or straight handpiece—are small and uncumbersome — do not interfere with your technique.

NOTE: Your Therm · Ex Spray may be converted to Dual Control in a matter of minutes by ordering necessary accessories.

******Full information and illustrated literature from your dealer or by writing Hanau.*

HANAU ENGINEERING COMPANY, INC.

1233 MAIN STREET BUFFALO 8, N. Y.

TRADE YOUR PRE-INSERTION WORRIES FOR POST-INSERTION THRILLS

BY SWITCHING TO *Replicast* PRECISION REMOVABLES

Think how much it would contribute to your peace of mind to know in advance that your cast removable cases—no matter how difficult—will fit just as you intended they should.

You will learn to take this precision fit for granted after you've inserted a few REPLICAST removables. That's because the Dresch-developed REPLICAST technic eliminates the "variables" of conventional casting methods, and yields a more accurate result at a cost that is no greater; in fact, is often even less.

You will enjoy a welcome relief from pre-insertion worries when you use these supremely accurate appliances. Mail the coupon or write for further particulars now.

REPLICAST ...A METHOD... NOT A MATERIAL

The Dresch Laboratories Company
1009 Jackson Street—Toledo 1, Ohio

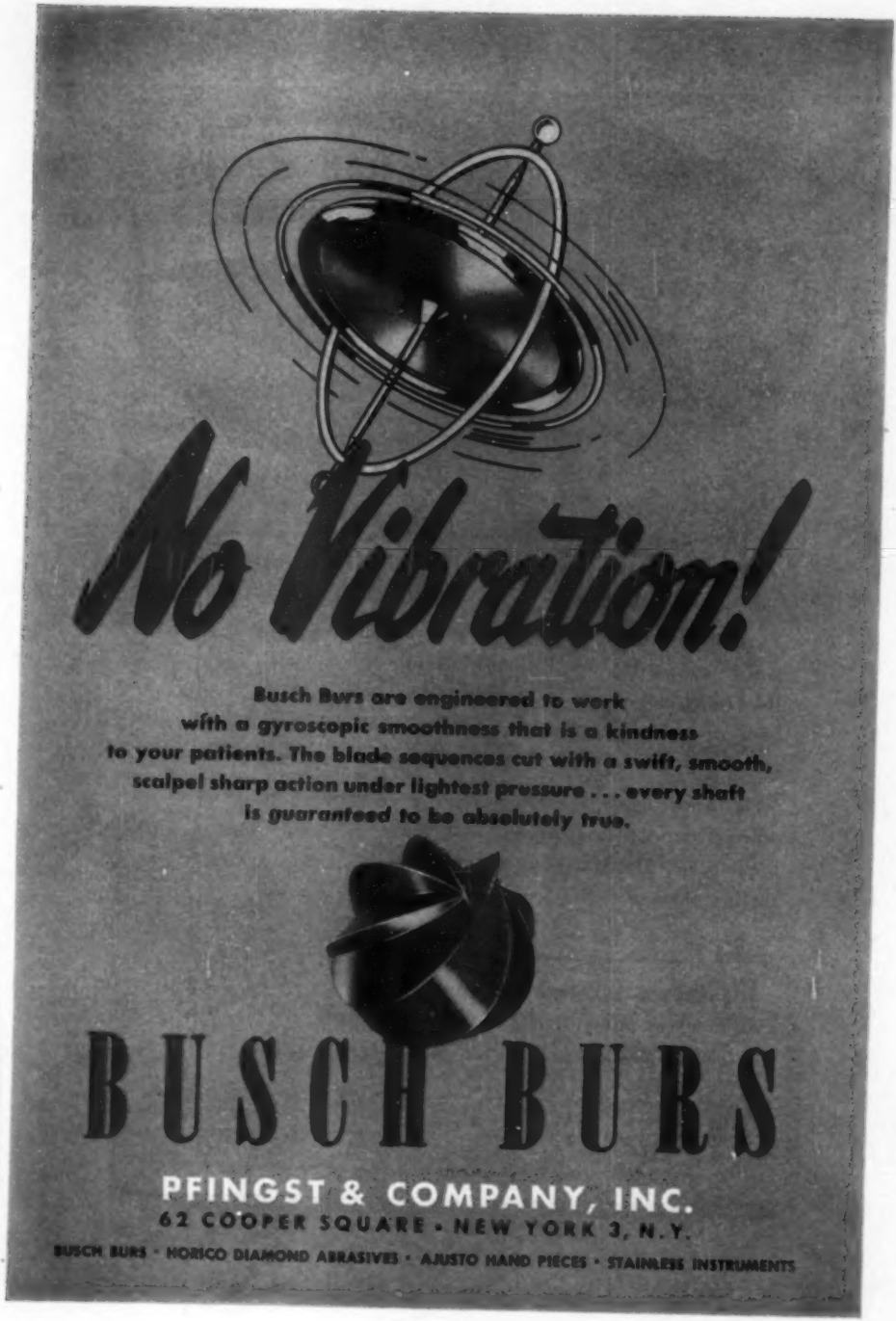
Tell me more about 'REPLICAST' precision removables.

Dr._____

*Street Address*_____

*City—Zone—State*_____

J01


No Vibration!
Busch Burs are engineered to work
with a gyroscopic smoothness that is a kindness
to your patients. The blade sequences cut with a swift, smooth,
scalpel sharp action under lightest pressure . . . every shaft
is guaranteed to be absolutely true.
BUSCH BURS
PFINGST & COMPANY, INC.
62 COOPER SQUARE • NEW YORK 3, N.Y.
BUSCH BURS • NORICO DIAMOND ABRASIVES • AJUSTO HAND PIECES • STAINLESS INSTRUMENTS

A dentist writes this about KADON:

"I have been a user of Kadon since it was first introduced to the profession. The material is everything you say it is. I can find no fault with it whatsoever."

Everything we say it is:
Esthetics excellent. Pulp response negligible. Great durability... doesn't wash out. Prompt, complete polymerization saves chair time, helps achieve high strength and low flow. Manipulation is planned to suit the greatest convenience of the dentist.

KADON

REG. U.S. PAT. OFF.

RESIN FOR RESTORATIVE DENTISTRY

THERE'S A Foredom MODEL for Every EXTRA-ENGINE REQUIREMENT!

$42.50
LESS HANDPIECE

$63.50
WITH DORIOT HANDPIECE

NEW
Allcord
MODEL
21

HERE ARE A FEW REPRESENTATIVE MODELS

MODEL 88

Allcord Engine. Also available in wall type (No. 98)

MODEL 7

Table type Allcord Engine for heavy-duty use

MODEL 505

Cable Engine only $21.00. Heavy duty models in overhead and table types also available.

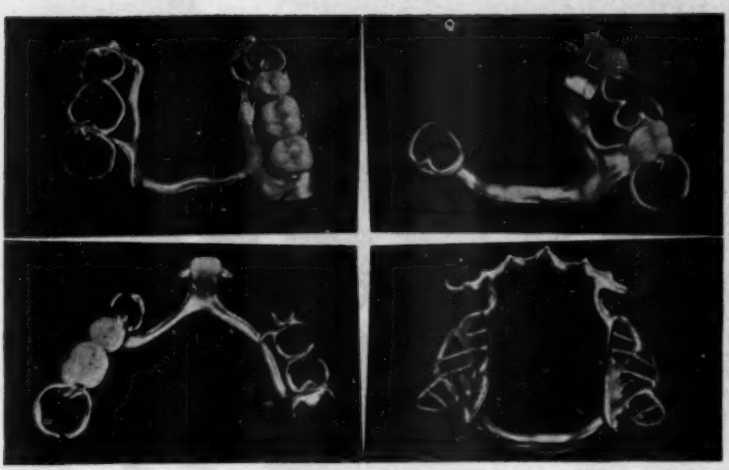
Treat Yourself

to that auxiliary allcord engine you've always wanted at a price that's so easy on your budget.

AN EXCELLENT MODEL FOR DENTAL STUDENTS

Order One Today From Your Dealer
If he cannot supply you, write us direct. Catalog D-720, on request.

FOREDOM ELECTRIC CO.
27 Park Place, New York 7, N. Y.



Your Patient's LASTING COMFORT...

Your Own EXACTING WORK

Both Suggest PLATINUM-PALLADIUM-GOLDS

Your patients benefit from your service long after the actual work is completed.

And when you fit partials cast from platinum-palladium-golds, you earn the respect and appreciation of your patients.

The gratifying comfort from appliances that retain their shape, that entail a minimum of weight and bulk and yet hold securely, is sound reason for recommending platinum-palladium-golds.

You, too, will find satisfaction in platinum-palladium-golds—an excellent medium for the best expression of dental skill and craftsmanship.

• • •

"PLATINUM-PALLADIUM-GOLDS IN DENTISTRY" contains many pages of helpful information. Have you sent for your free copy of this booklet?

Platinum Metals Division

THE INTERNATIONAL NICKEL COMPANY, INC., 67 Wall St., New York 5, N.Y.

Fits "LIKE A GLOVE"

but..

in the presence of anatomical or psychological difficulties, the patient may never achieve successful adaptation without extra help during the first critical weeks.

To encourage persistent use during this difficult period, many dentists recommend Wernet's Powder, which improves retention and stability with its soft resilient cushion. By stimulating confidence, it helps significantly in facilitating successful mastery of the new prosthesis.

Use the coupon for a liberal free office supply.

Wernet Dental Mfg. Co., Inc,
Jersey City 2, N. J.

SPEEDS THE MASTERY OF THE DENTURE

WERNET'S POWDER

WERNET DENTAL LORE

OCTOBER 1951

Dentists are an erudite lot! In addition to their degree of D.D.S. (earned by 91.8% of the profession), or of D.M.D. (by the remaining 8.2%), one-fourth of all practicing dentists have one or more non-honorary degrees to their credit.

• • •

Early this year, Philadelphia was the scene of the first full and complete color televising of a dental operation—a procedure that is expected eventually to improve dental education everywhere.

• • •

Dentists have other things to worry about than politics. Even so, the present U.S. Senate boasts the inclusion of two members from that profession—Henrik Shipstead of Minnesota and Lester C. Hunt of Wyoming.

• • •

The dental profession can take pride in the fact that three of their colleagues were reportedly responsible for three important "firsts" in the clinical use of drugs: first to introduce the important local anesthetic, cocaine; first to use the general anesthetic, nitrous oxide; and first to employ ether for the same purpose.

• • •

How old is the practice of prosthetics in Western civilization? One thing is known: Lorenz Heister, celebrated German surgeon, published in 1718 a text on surgery in which removable prosthetic pieces made of ivory or hippopotamus tusks are probably mentioned for the first time. These "prostheses" were maintained in position simply by their form.

• • •

On arrival from India, the various consignments of crude karaya gum are carefully tested and blended so as to yield a water-soluble product of uniform quality, as to viscosity, purity and other properties, before they are used in the preparation of Wernet's Powder.

WERNET DENTAL MFG. CO., INC.
Jersey City 2, N. J. Dept. I-K

Please send me a complimentary office supply of Wernet's Powder.

Dr._____

Address_____

City_____ State_____

Washington, D.C. • Hotels

Key No.	Hotel	Single	Double*
15	Ambassador	4.50–7.00	7.00–11.00
21	Annapolis	3.50–6.00	6.50– 9.00
12	Blackstone	4.00– 6.00	6.00– 8.00
10	Burlington	4.50– 8.00	7.00–12.00
4	Cairo	3.00– 5.00	5.00– 8.00
16	Carlton	7.00–10.00	9.00–13.00
28	Carlyle	3.50– 6.00	6.00– 9.00
32	Carroll Arms	4.00– 6.00	5.00– 9.00
27	Commodore	3.00– 5.00	5.00– 8.00
33	Congressional	6.50– 8.50	8.50–11.00
30	Continental	3.00– 7.00	6.00–10.00
29	Dodge	4.00– 8.00	6.00–10.00
34	Dupont Plaza	8.00– 9.00	10.00–11.00

Key No.	Hotel	Single	Double*
22	Ebbitt	3.00– 5.00	5.00– 8.00
3	Fairfax	5.00– 6.00	7.00– 8.00
14	Hamilton	4.25– 6.25	6.75– 8.75
26	Harrington	2.75– 6.00	5.50– 8.50
18	Hay-Adams	3.00– 7.50	7.50–10.50
17	Lafayette	5.00– 6.00	7.00–10.00
11	Lee House	5.00– 8.50	9.00–10.50
7	Martinique	4.50– 6.50	6.50– 8.50
8	Mayflower	5.50–14.00	11.00–17.00
19	National	3.00– 3.50	4.50– 5.50
9	New Colonial	2.50– 6.00	5.00– 9.00

Key No.	Hotel	Single	Double*
31	Plaza	3.00– 5.00	4.50– 8.00
25	Raleigh	5.00– 8.00	7.50–13.00
20	Roger Smith	4.50– 7.50	6.50–10.00
5	Roosevelt	7.00– 9.00	9.00–11.00
1	Shoreham	7.00– 8.00	9.00–11.00
13	Statler	5.50–12.50	8.00–15.00
6	Twenty-Four Hundred	4.50– 6.50	8.00–10.00
2	Wardman Park	6.00– 9.00	9.00–12.00
23	Washington	5.50– 8.80	9.00–13.00
24	Willard	5.00– 8.00	8.00–13.00

*Rates for suites can be obtained from hotel accepting reservation.

Hotel Reservation Application . . .

92nd Annual Session—
American Dental Association
October 15-18, 1951
Washington, D. C.

A. D. A. HOUSING BUREAU

204 Star Building
Washington 4, D. C.

INSTRUCTIONS:

Reservations for hotel accommodations may be secured by completing this application and mailing it to: *A.D.A. Housing Bureau,* 204 Star Building, Washington 4, D. C. List four choices of hotels. You will receive confirmation direct from the hotel accepting the reservation. If any difficulty arises with the reservation, write immediately to the A.D.A. Housing Bureau in Washington.

(Please print or type) A.D.A.

Applicant:

Name_____

_____
(Street address) (City) (Zone) (State)

Arrival in Washington_____ a.m. / p.m. Leaving_____

Accommodations:

Hotel_____ (First choice) Hotel_____ (Third choice)

Hotel_____ (Second choice) Hotel_____ (Fourth choice)

☐ Single occupancy, rate to range from $_____ to $_____ per day.

☐ Double occupancy, double bed, rate to range from $_____ to $_____ per day.

☐ Double occupancy, twin beds, rate to range from $_____ to $_____ per day.

☐ Suite of_____ rooms, including parlor, rate to range from $_____ to $_____ per day.

Occupants: (use extra sheets for additional rooms)

Rooms will be occupied by:

_____
(Name) (Address) (City) (State)

_____
(Name) (Address) (City) (State)

Basically, of course, a technician must have a natural, manual skill and an unswerving desire to employ that skill in creating and constructing dental restorations that will be admired by others. But, in the CAL-LAB near your office, there is considerably more to it than that! There, the owner compares the efforts of its technicians with those of other Cal-Labs in every section of the nation with the ultimate goal of helping every technician to achieve the summit of craftsmanship. Through tested Cal-Lab methods, a technician adds to his fund of knowledge, develops his dexterity, increases his experience and efficiency. By these methods, the very standards of prosthetic service are constantly being raised . . . for YOU . . . and your patients. Call your Cal-Lab today.

the CAL-LAB Group

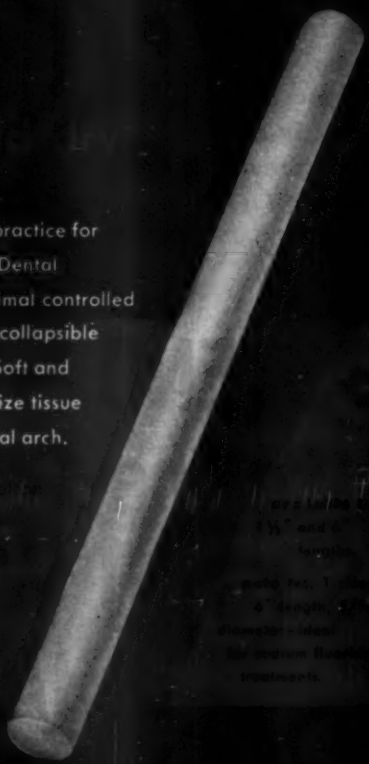
CERTIFIED ANSELL LABORATORIES cal SERVICE

*REG. U.S. PAT. OFF.

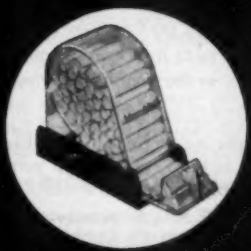
Do you read CAL magazine?
Ask your CAL-LAB to send it to you!

Standard in dental practice for many years, Johnson & Johnson Dental Cotton Rolls provide optimal controlled absorbency. They are non-collapsible and eliminate flooded fillings. Soft and smooth, they do not traumatize tissue and mold compactly to the dental arch.

Johnson & Johnson



DENTAL COTTON ROLLS



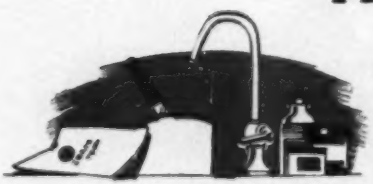
ask your dealer about the convenient COTTON ROLL DISPENSERS.

DENTAL DIVISION

RECOGNIZED BY PATIENTS — RELIED ON BY DENTISTS

in the manufacture of D-P ELASTIC IMPRESSION CREAM...

WE ATTEND to the CHEMISTRY SO YOU WON'T HAVE TO!



You Simply Mix D-P ELASTIC IMPRESSION CREAM with ordinary tap water and it's ready to use—which saves your time!

You DO NOT have any complicated solutions to prepare because we've attended to the chemistry *during manufacture.*

ANOTHER TIME SAVER—You can pour the stone IMMEDIATELY (or store in plain water temporarily if preferred). In either case, you suit your own convenience, instead of being bound by a time-consuming procedure.

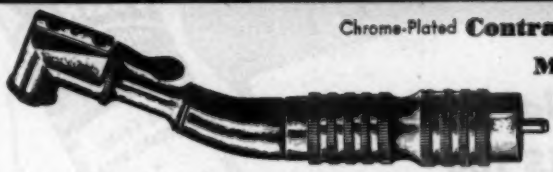
WHAT BETTER REASON for ordering Elastic Impression Cream from your Dental Dealer NOW!

dental perfection co.

543 West Arden Ave. • Glendale 3, Calif.

Prices Drastically Reduced!

FOR 30 DAYS ONLY! **ORDER AT ONCE**



Chrome-Plated **Contra Angle Doriot**

Made in U.S.A.

$6.95

Present selling price in Dental Depots $13.00 — ONLY ONE TO A CUSTOMER

Imported Chrome Plated, Contra Angle for Doriot		$ 4.95
100 "STANDARD" Anesthetic TUBES—(Accepted A.D.A.) (Formulas 2A and 1AB)		3.95
Chrome Plated, U.S.A. Make, Right Angle for Doriot		5.95
Chrome Plated, U.S.A. Make, Contra Angle for Doriot		6.95
Chrome Plated, U.S.A. Make, Doriot Hand Piece		19.45
12 GUARANTEED BOILABLE MIRRORS (Sizes 4-5-6 Plain or Mag.)		2.90
IMPORTED BURS Round or Inverted Cone	Gross	7.25
IMPORTED BURS Cross Cut Fissure	Gross	9.45
IMPORTED FORCEPS (Chrome-Plated) (Numbers 15, 16, 18L, 18R, 32, 53L, 53R, 65, 69, 85, 88L, 88R, 150, 151)	Each	2.45
18 Assorted Aluminum Trays (all good numbers)		3.50
Diamond Instruments—Nos. 1-2-7-18-25-26-32-35-75-76-87	Each	1.95
5 ozs. STANDARD ALLOY (69% Silver, 25% Tin, 5% Copper, 1% Zinc) A.D.A. Accepted		7.50
100 Assorted Copper Bands (½" x 36G) 20 Sizes in box		1.75
24 Steel MANDRELS for Hand Piece $1.50 ..... For Right Angle		2.00
6 Assorted VULCANITE BURS (Round, Bud, Pear, Egg)		1.75
2 Jars Floss in Glass Containers (150 Yards)		1.25
12 Carborundum Mounted Points (Assorted)		1.25
2 Chrome Plated Clogless Saliva Ejectors		1.25
2 Dozen Steel Disks (⅛"-¾"-⅞")		1.00
1 Bottle Surface Anesthetic (A.D.A. Accepted)		1.00
6 Dozen Broaches		1.50
200 No. 2 Record Cards, Size 4" x 6"		1.00
1 Amalgam Carrier (Chrome-Plated)		1.00
4 Stainless Steel P. W. Explorers (3-6-17-23)		1.00
6 Boxes Celluloid Strips		1.00
5 Boxes Temporary Stopping		1.00
2 Boxes Linen Strips		1.00
Box of S. S. White Porcelain, Shades 20-23-24-25-27-28		1.00
30 Assorted Heatless Wheels (Sizes 4 to 12)		1.00
20 Books Articulating Paper		1.00
50 Assorted Pumice Rubber Cleaning & Polishing Wheels—Cups		1.00
4 Assorted Dappin Dishes (Amber, Blue, Green, Clear)		1.00
3 Engine Belts		1.00

TERMS: Check with order—or C.O.D. (C.O.D. Fees extra)
Parcel Post Prepaid—TO YOUR OFFICE
Include Business Card or Letter Head with order

FREE!—Gent's Leather Billfold—with $10.00 order—FREE!

HURRY if you want any of these SENSATIONAL VALUES
MAIL YOUR ORDER AT ONCE—BEFORE IT IS TOO LATE

STANDARD DENTAL PRODUCTS CO.

908 Chestnut St. **Philadelphia 7, Pa.**

ABSOLUTE SATISFACTION or YOUR MONEY BACK

DEELASTIC

the Material that SIMPLIFIES the Hydrocolloid Technic

DEELASTIC has been an important factor in the steadily growing popularity of the reversible hydrocolloid technic for taking impressions. The main reason is that this true reversible hydrocolloid material has a consistency that assures faithful reproduction of every detail of teeth and tissue. Furthermore, it is easy to prepare, causes the patient no discomfort and has a pleasant flavor, and can be withdrawn in one piece without distortion.

***DEELASTIC** can be prepared in the convenient metal tubes in which it is supplied. It is available also in small sticks, called "Midgets," for indirect inlay technic.*

Many dentists have characterized DEELASTIC as "The ideal impression material." If you have never tried it, we suggest you order a tube from your dealer and put it to the test. We're confident you will be pleased with results.

PRECIOUS METALS • DENTAL SPECIALTIES • REFINING •

HANDY & HARMAN

INDEX TO ADVERTISEMENTS

October 1951

Abbott Laboratories A-43
Acralite Co., Inc. A-34
American Dental Assn. A-6, A-17, A-35
Ash, Claudius and Sons A-45
Astra Pharmaceutical Products, Inc. A-59
Austenal Laboratories A-56, A-57

Baker and Company A-18
Bristol Myers Co. A-16, A-54

Caulk Company, L. D. A-50, A-65
Childs Mfg. Co. A-20
Classified Advertising A-26, A-27, A-28
Coe Laboratories A-72
Columbus Dental Mfg. Co. A-41
Commercial Solvents Corp. A-30
Condit, P. N. A-35
Cook-Waite Laboratories A-4, A-5, A-7
Corega Chemical Company A-51
Cosmos Dental Products, Inc. A-1
Crescent Mfg. Company A-46

Dental Perfection Co. A-74
Dentists' Supply Co. of N. Y. ..... A-2, A-3, 2nd Cover, 4th Cover
Dresch Laboratories A-63
Dunhill of London, Alfred A-19
DuPont de Nemours & Co., E. I. A-48, A-49
Durallium Products Corp. A-36

Eastman Kodak Company A-13
Easy Plastic Products Co. A-39
Exakta Camera Company A-37

Fashion Seal Uniforms A-19
Fleet Company, C. B. A-11
Foredom Electric Company A-66
FR Corporation A-33

General Electric Co., X-Ray Dept. A-42

Hatch Company, B. G. A-24
Hanau Engineering Company A-62
Handy and Harman A-76
Housing Application A-70, A-71
Hudson Products A-47

International Nickel Co. A-67

Jelenko and Co., J. F. A-35
Johnson and Johnson A-73

King's Specialty Co. A-24

Lea & Febiger A-39
Lederle Laboratories A-8
Lippincott Co., J. B. A-22
Luxene, Inc. A-14

Medical Protective Co. A-24
Mosby Company, C. V. A-44
Moyer Company, J. Bird A-40
Myerson Tooth Corporation A-52, A-53

National Dairy Council A-21
Ney Company, J. M. A-9
Novocol Chemical Mfg. Co. A-23

Odontographic Mfg. Co., Inc. A-55
Op-Pro, Inc. A-37
Oral B Company A-38

Pelton and Crane Co. A-32
Pfingst and Co. A-64
Physicians Casualty & Health Assn. A-46
Professional Printing Co. A-41
Prophylactic Brush Company A-12

Ransom and Randolph Co. A-25
Ritter Company A-58
Rota-Seat, Inc. A-15

Speyer Smelting & Refining Co. A-37
Standard Dental Products Co. A-75

Ticonium A-29

Union Broach Co. A-28

Wernet Dental Mfg. Co. A-68, A-69
White Dental Mfg. Co., The S. S. A-60, A-61
Whitehall Pharmacal Company A-10

only

trubyte Bioform® teeth

harmonize with all 3 dimensions of the face

Not until the development of **Trubyte Bioform Teeth** was it possible to select teeth that would harmonize with all three dimensions of the face.

•

EW IN EVERY WA

trubyte Bioform® teeth

um fired po

It's so easy to select the most suitable form of TRUBYTE BIOFORM

1. Classify the basic outline of the face as square, square tapering, tapering or ovoid.

2. Classify the cheek planes as round or flat.

3. Classify the profile as curved or straight.

Eliminates resets and make-overs. Make your selection of **Trubyte Bioform Teeth** from your workable Mould Guide and Shade Selector Assortment.

Tell your patients of the progress that has been made in the manufacture of artificial teeth.